KUPNÍ SMLOUVA

1. Smluvní strany

Masarykův onkologický ústav
se sídlem Žlutý kopec 7, 656 53 Brno
zastoupený prof. MUDr. Markem Svobodou, Ph.D., ředitelem
IČO: 00209805, DIČ: CZ00209805
bankovní spojení: Česká národní banka, číslo účtu: 87535621/0710
(dále jen „kupující“)

a

Siemens Healthcare, s.r.o.
se sídlem Budějovická 779/3b, 140 00 Praha 4
zastoupená Mgr. Michalem Čechem a Ing. Karlem Kopejtkem, jednateli
IČO: 04179960, DIČ: CZ04179960
bankovní spojení: UniCredit Bank Czech Republic and Slovakia, a.s., č. ú.: 2111696847/2700
zapsaná v obchodním rejstříku vedeném Městským soudem v Praze, spisová značka C 243166
(dále jen „prodávající“)

uzavírají v návaznosti na zadávací řízení k veřejné zakázce **Počítačový tomograf (CT) [2025]**, evidenční číslo veřejné zakázky: Z2025-015552, zadávané kupujícím dle zákona č. 134/2016 Sb., o zadávání veřejných zakázek, ve znění pozdějších předpisů (dále jen „ZZVZ“), a realizované v rámci projektu **Vznik a rozvoj Centra onkologické prevence a infrastruktury pro inovativní a podpůrnou péči Masarykova onkologického ústavu**, registrační číslo projektu: CZ.31.8.0/0.0/0.0/22_042/0007579 (dále jen „projekt“), který je financován Evropskou unií z Nástroje pro oživení a odolnost prostřednictvím Národního plánu obnovy ČR, v souladu s § 2079 a násl. zákona č. 89/2012 Sb., občanský zákoník, ve znění pozdějších předpisů (dále jen „občanský zákoník“), tuto kupní smlouvu (dále jen „smlouva“):

2. Předmět smlouvy

2.1. Prodávající se zavazuje dodat kupujícímu **Naeotom Alpha Prime** včetně příslušenství dle specifikace uvedené v příloze č. 1a smlouvy (dále jen „zařízení“), převést na kupujícího vlastnické právo k zařízení a dále se v souvislosti s dodáním zařízení zavazuje k:

1. zpracování technologického projektu,
2. instalaci / montáži a uvedení zařízení do provozu,
3. dodání všech dokladů a dokumentů potřebných k převzetí a užívání zařízení v souladu s právními předpisy, zejména
   - uživatelských manuálů / návodů k obsluze a technických manuálů v českém jazyce v tištěné i elektronické podobě,
   - dokladů dle zákona č. 22/1997 Sb., o technických požadavcích na výrobky a o změně a doplnění některých zákonů, ve znění pozdějších předpisů, a jeho prováděcích předpisů,
4. provedení elektrické revize zařízení v rozsahu dle zákona č. 89/2021 Sb., o zdravotnických prostředcích, ve znění pozdějších předpisů (dále jen „zákon o zdravotnických prostředcích“), je-li právními předpisy vyžadována,
5. provedení přejímací zkoušky, zkoušky dlouhodobé stability a zkoušky provozní stálosti v rozsahu dle zákona č. 263/2016 Sb., atomový zákon, ve znění pozdějších předpisů (dále jen „atomový zákon“), a jeho prováděcích předpisů jsou-li právními předpisy vyžadovány,
6. odvozu veškerých obalů zařízení a obdobných materiálů,
7. připojení zařízení k síti PACS dle DICOM Conformance Statement uvedeného v příloze č. 4 smlouvy,
8. provést školení nebo, stanovil-li to výrobce zařízení v návodu k použití, instruktáž dle zákona o zdravotnických prostředcích; v rozsahu dle doporučení výrobce zařízení, v češtině, v sídle kupujícího.

2.2. Prodávající se v záruční době a po dobu 8 let od skončení záruční doby zavazuje k provádění a poskytování následujících služeb (dále jen „služby“):

- provádění bezpečnostně technických kontrol zařízení (BTK),
- provádění zkoušek dlouhodobé stability zařízení,
- provádění elektrických revizí zařízení,
- provádění upgradu a updatu softwaru zařízení,
- provádění preventivní údržby zařízení,
- poskytování konzultačních služeb k zařízení.

Po dobu 8 let od skončení záruční doby je součástí služeb rovněž:

- odstraňování vad zařízení („full servis“),

které je v záruční době kryto odpovědností za vady a zárukou za jakost dle čl. 6. smlouvy.

2.3. Prodávající se dále zavazuje k poskytování školení aplikačním specialistou prodávajícího, a to v následujícím rozsahu:

- min. 10 pracovních dní při zahájení provozu zařízení,
- min. 5 pracovních dní po 3 měsících ode dne zahájení provozu zařízení,
- min. 2 pracovní dny po 1 roce ode dne zahájení provozu zařízení.

2.4. Kupující se zavazuje řádně a včas dodané zařízení převzít a zaplatit za něj dohodnutou cenu, dále se zavazuje zaplatit dohodnutou cenu za řádně a včas provedené a poskytnuté služby a školení aplikačním specialistou.

3. Místo, doba a způsob dodání zařízení

3.1. Místem dodání zařízení jsou prostory Centra prevence Masarykova onkologického ústav (Žlutý kopec 7, 656 53 Brno, pavilon Centrum prevence, dále jen „místo dodání“). Místo dodání je blíže vymezeno projektovou dokumentací místa plnění v příloze č. 1c smlouvy (2. NP, místnost č. K04241, viz výkres „D.1.1.2.2.05A Půdorys 2.NP ZÁPAD.pdf“, transportní trasa dveřmi ze severní strany v úrovni 2. NP (na terénu) do místnosti č. K04205 (recepce) a dále pak přes čekárnu a chodbu do místa dodání (vše v úrovni 2. NP), viz výkres „D.1.1.2.2.5B Půdorys 2.NP SEVER.pdf“). Prodávající v této souvislosti prohlašuje, že se s místem dodání a transportní cestou seznámil a je mu dobře známa.

3.2. Prodávající se za účelem zajištění stavební připravenosti místa dodání zavazuje do 15 dnů ode dne nabytí účinnosti smlouvy zpracovat a předat kupujícímu technologický projekt obsahující alespoň specifikaci podmínek nutných pro zajištění bezpečného, spolehlivého s právními předpisy souladného provozu zařízení a návrhu na jejich splnění v místě dodání zařízení (dále jen „technologický projekt“) a nároky a řešení transportní trasy.

3.3. Technologický projekt musí respektovat dispozice místa dodání (zejm. místnosti blíže vymezené v čl. 3.1 smlouvy) a zároveň:

3.3.1. být zpracován autorizovanou osobou ve smyslu zákona č. 360/1992 Sb., o výkonu povolání autorizovaných inženýrů a techniků činných ve výstavbě, ve znění pozdějších předpisů;

3.3.2. mít náležitosti dle přílohy č. 8 odstavce D. Dokumentace technických a technologických zařízení vyhlášky č. 131/2024 Sb., o dokumentaci staveb, ve znění pozdějších předpisů;

3.3.3. být zpracován a předán (1) v datové podobě výhradně ve formátech DWG, PDF, DOCX a XLSX) a dále (2) a v listinné podobě ve třech vyhotoveních, z nichž nejméně jeden musí být opatřen autorizačním razítkem zpracovatelem technologického projektu.

3.4. Kupující se zavazuje k technologickému projektu ve lhůtě do 15 dnů ode dne jeho předání (dále jen „lhůta pro vyjádření“) prodávajícímu vyjádřit.

3.5. V případě, že kupující ve svém vyjádření zaslaném ve lhůtě pro vyjádření uvede, že k technologickému projektu nemá připomínky nebo že technologický projekt přebírá, považuje se technologický projekt dnem odeslání takového vyjádření prodávajícímu za převzatý.

3.6. V případě, že kupující prodávajícímu ve lhůtě pro vyjádření nezašle, považuje se technologický projekt dnem uplynutí lhůty pro vyjádření za převzatý.

3.7. V případě, že kupující prodávajícímu ve lhůtě pro vyjádření zašle vyjádření s připomínkami (zejména stran vad spočívajících v rozporu s právními předpisy), je prodávající povinen technologický projekt dle připomínek upravit a do 5 dnů jej opětovně zaslat prodávajícímu. V takovém případě se dále postupuje dle čl. 3.4 a násl. smlouvy, prodávající se v takovém případě dnem odeslání (druhého) vyjádření s připomínkami dostává do prodlení s předložením technologického projektu.

3.8. Smluvní strany se dohodly, že stavební připravenost místa dodání zajistí na své náklady kupující. Prodávající v této souvislosti prohlašuje, že bere na vědomí, že zajištění stavební připravenosti může trvat až 150 dnů ode dne převzetí technologického projektu kupujícím (kupující předpokládá dokončení v lednu 2026). Prodávající se v této souvislosti zavazuje poskytovat kupujícímu potřebnou součinnost při projednání a schválení dokumentace komplexního projekčního řešení a při realizaci stavebních úprav včetně účasti na převzetí stavebních prací. Prodávající je v průběhu realizace stavebních úprav oprávněn účastnit se kontrolních dnů kupujícího.

3.9. Kupující se zavazuje v souvislosti s dokončením stavební připravenosti místa dodání bez zbytečného odkladu vyzvat prodávajícího ke splnění jeho závazků dle čl. 2.1 bodu druhého–šestého smlouvy. Kupující ve výzvě mj. uvede datum, od kterého je v místě dodání možné zahájit plnění těchto závazků (dále v tomto článku jen „den možného zahájení“). Prodávající se zavazuje splnit tyto závazky a vyzvat kupujícího k převzetí zařízení do 30 dnů ode dne možného zahájení. V případě, že by kupující výzvu doručil méně než 10 dnů přede dnem možného zahájení, prodlužuje se lhůta pro splnění těchto závazků o rozdílový počet dnů. Po převzetí zařízení bude ze strany kupujícího zajištěno dokončení stavebních prací v místě dodání (bude-li to s ohledem na technologický projekt zapotřebí) a v dalších prostorách v budově místa plnění.

3.10. Kupující se zavazuje v souvislosti s dokončením shora uvedených stavebních prací bez zbytečného odkladu vyzvat prodávajícího ke splnění jeho závazků dle čl. 2.1 bodu sedmého–osmého smlouvy. Kupující ve výzvě mj. uveden datum, od kterého je v místě dodání možné zahájit plnění těchto závazků (dále v tomto článku jen „den možného zahájení“). Prodávající se zavazuje splnit tyto závazky a vyzvat kupujícího k převzetí dotčeného plnění do 30 dnů ode dne možného zahájení. V případě, že by kupující výzvu doručil méně než 10 dnů přede dnem možného zahájení, prodlužuje se lhůta pro splnění těchto závazků o rozdílový počet dnů.

4. Předání a převzetí zařízení

4.1. Kupující se zavazuje převzít zařízení, jsou-li závazky prodávajícího dle čl. 2.1. smlouvy splněny řádně (zejména je-li zařízení v souladu se smlouvou, právními předpisy a technickými normami; tj. je-li zařízení dodáno řádně) a včas, v opačném případě není kupující povinen zařízení převzít. Předávací řízení s ohledem na čl. 3.9 a 3.10 smlouvy proběhne ve dvou fázích.

4.2. Prodávající se zavazuje o předávacím řízení pořídit ve 2 vyhotoveních zápis obsahující:

- identifikaci smluvních stran,
- specifikaci zařízení,
- prohlášení kupujícího, zda zařízení převzal (bez výhrad / s výhradami) či nepřevzal,
- datum vyhotovení zápisu,
- pokud kupující zařízení převezme, je (kupující) do zápisu povinen uvést:
  - datum provedení školení / instruktáže k zařízení,
  - seznam předaných dokladů,
  - vymezení případných vad, se kterými je zařízení převzato (včetně termínů pro jejich odstranění),

pokud kupující zařízení nepřevezme, je do zápisu povinen uvést:

- vymezení důvodů nepřevzetí zařízení.

Ze zápisu musí být patrné, k jakému dni byly dokončeny závazky prodávajícího dle čl. čl. 3.9 smlouvy a k jakému datu byly dokončeny závazky prodávajícího dle čl. 3.10 smlouvy.

Smluvní strany obsah zápisu potvrdí podpisy svých zástupců na obou vyhotoveních zápisu, každá smluvní strana obdrží jeden.

4.3. Zařízení se považuje za předané / převzaté okamžikem, ve kterém kupující podepíše zápis dle čl. 4.2 smlouvy, ze kterého vyplývá, že kupující zařízení převzal, resp. že jsou splněny závazky prodávajícího jak dle čl. 3.9, tak dle čl. 3.10 smlouvy.

4.4. Prodávající je povinen na vlastní náklady odvézt veškeré obaly zařízení a obdobné materiály a dále postupovat v souladu se zákonem č. 541/2020 Sb., o odpadech, ve znění pozdějších předpisů, nedomluví-li se smluvní strany jinak.

4.5. Prodávající je v případě, že kupující v souladu se smlouvou zařízení odmítne převzít, povinen zařízení včetně veškerých obalů zařízení na vlastní náklady odvézt.

5. Přechod vlastnického práva a nebezpečí škody na zařízení

5.1. Okamžikem převzetí zařízení kupujícím na kupujícího přechází vlastnické právo k zařízení a nebezpečí škody na zařízení.

6. Odpovědnost za vady, záruka za jakost zařízení

6.1. Prodávající odpovídá za vady zařízení, jež má zařízení v době jeho předání, i za vady zjištěné v době záruky za jakost (dříve a dále jen „záruka“ a „záruční doba“).

6.2. Prodávající poskytuje na zařízení záruku v délce 24 měsíců. Záruční doba se prodlužuje o dobu, po kterou není zařízení provozuschopné z důvodu vad, na něž se vztahuje záruka. Záruční doba počíná běžet dnem převzetí zařízení kupujícím.

6.3. Prodávající se zárukou zavazuje, že zařízení bude v záruční době plně funkční, v souladu se smlouvou, s prohlášeními prodávajícího, s právními předpisy a že bude mít vlastnosti uváděné prodávajícím a výrobcem zařízení a neuvádí-li je, pak vlastnosti obvyklé.

6.4. Kupující je v případě vady zařízení povinen vadu prodávajícímu nahlásit (reklamovat) a uvést, jak se vada projevuje. Kupující je oprávněn uvést, zda vada vylučuje či omezuje klinický provoz zařízení (pokud kupující v konkrétním případě výslovně neuvede jinak, má se za to, že jde o vadu neomezující klinický provoz).

6.5. V případě vady zařízení má kupující ze strany prodávajícího nárok na / je oprávněn k:

- bezplatné odstranění vady zařízení opravou (vždy),
- bezplatné odstranění vady zařízení dodáním nového bezvadného zařízení (jedná-li se o nejméně třetí výskyt vady téhož druhu bránící řádnému užívání zařízení nebo i v případě, že se jedná o první či druhý výskyt vady téhož druhu bránící řádnému užívání zařízení, kterou prodávající neodstranil opravou ani do 30 dnů ode dne doručení oznámení kupujícího prodávajícímu, že je v prodlení s opravou dotčené vady),

- poskytnutí přiměřené slevy z kupní ceny (vždy) anebo
- odstoupení od smlouvy (v případě, že prodávající neodstranil vadu postupem dle bodu druhého ani do 30 dnů poté, co jej k tomu kupující vyzval).

6.6. Prodávající je povinen odstranit vadu za podmínek a v termínech dle čl. 9.3. a násl. smlouvy.

6.7. Záruka za jakost se prodlouží o dobu, po kterou nebude zařízení provozuschopné z důvodu vad, na něž se vztahuje záruka za jakost.

6.8. Prodávající garantuje, že zařízení bude plně využitelné a bez poruchy v rozsahu 90 % celoroční pracovní doby. Celoroční pracovní dobou se rozumí součet pracovních dnů v příslušném kalendářním roce. Zařízení se přitom v rámci pracovního dne považuje za plně využitelné a bez poruchy, je-li možné jej využívat k jeho účelu v rozmezí od 7.00 h. do 15.00 h. Během provádění servisních zásahů dle čl. 7. smlouvy se má za to, že je zařízení plně využitelné a bez poruchy.

7. Provádění bezpečnostně technických kontrol, elektrických revizí, zkoušek dlouhodobé stability, preventivní údržby a upgradu a updatu softwaru zařízení

7.1. Prodávající se zavazuje provádět jednotlivé úkony služeb dle tohoto článku smlouvy (dále také „servisní zásahy“) v termínech dle domluvy s kupujícím, obvykle v pracovní dny v době od 8.00 do 17.00 h.

7.2. Prodávající se zavazuje provádět **pravidelné bezpečnostně technické kontroly zařízení** (dále jen „PBTK“) alespoň v rozsahu a četnosti dle zákona o zdravotnických prostředcích.

Prodávající se zavazuje o každé provedené PBTK vypracovat protokol a do 3 dnů od provedení PBTK jej v jednom vyhotovení předat kupujícímu; jedno vyhotovení protokolu si ponechá prodávající.

7.3. Prodávající se zavazuje provádět pravidelné a mimořádné zkoušky dlouhodobé stability zařízení (dále jen „ZDS“) v souladu s atomovým zákonem, ve znění pozdějších předpisů, jsou-li právními předpisy vyžadovány, a to prostřednictvím osob s příslušným povolením Státního ústavu pro kontrolu léčiv.

Každá pravidelná ZDS musí být dokončena nejpozději do 1 roku od dokončení předchozí pravidelné ZDS, zároveň však ne dříve než 15 dní před uplynutím této doby. V případě, že při pravidelné ZDS dojde ke zjištění nevyhovujících hodnot, je prodávající povinen o této skutečnosti informovat kupujícího, a to nejpozději do 6 kalendářních dnů od dne tohoto zjištění; tato situace se považuje za vadu zařízení, kterou je prodávající povinen odstranit v termínech dle smlouvy, a následně provést opětovnou ZDS, nejpozději do 5 pracovních dnů ode dne odstranění vady.

7.4. Prodávající se zavazuje v případech vymezených vyhláškou č. 422/2016 Sb., o radiační ochraně a zabezpečení radionuklidového zdroje, ve znění pozdějších předpisů, provádět mimořádné ZDS.

7.5. Prodávající se zavazuje o každé provedené ZDS vypracovat protokol (v protokolu musí být mj. uvedena doba platnosti) a nejpozději do 15 dnů od provedení ZDS jej v jednom listinném a jednom elektronickém vyhotovení předat kupujícímu, zároveň se do 25 dnů od provedení ZDS zavazuje jedno vyhotovení protokolu předat Státnímu ústavu pro kontrolu léčiv.

7.6. Prodávající se zavazuje provádět **elektrické revize zařízení**, jsou-li právními předpisy vyžadovány, alespoň v rozsahu a četnosti dle zákona o zdravotních prostředcích a souvisejících právních předpisů.

Prodávající se zavazuje o každé provedené elektrické revizi vypracovat protokol a do 3 dnů od provedení této revize jej v jednom vyhotovení předat kupujícímu.

7.7. Prodávající se zavazuje provádět **preventivní údržbu zařízení** a dalších úkonů směřujících k zachování bezpečnosti a plné funkčnosti zařízení alespoň v rozsahu a četnosti dle doporučení výrobce zařízení (zejména nastavení, seřízení, opravy, promazání, kalibraci, aktualizaci a další údržbu nutnou pro spolehlivý provoz hardwarové i softwarové části zařízení). Seznam úkonů preventivní údržby s určením měsíce, ve kterém mají být jednotlivé úkony provedeny, je uveden v příloze č. 6 smlouvy.

Prodávající se zavazuje o provedené preventivní údržbě zařízení vypracovat protokol a do 3 dnů od jeho provedení jej předložit kupujícímu.

7.8. Prodávající se zavazuje oznámit kupujícímu uvolnění **upgradu a updatu softwaru zařízení** vždy nejpozději do 60 dnů ode dne uvolnění dotčeného upgradu či updatu výrobcem (softwaru) zařízení, do 30 dnů ode dne potvrzení souhlasu kupujícího se zavazuje dotčený upgrade anebo update softwaru zařízení řádně nainstalovat.

Prodávající se zavazuje o každém provedeném upgradu nebo updatu softwaru zařízení vypracovat protokol a do 3 dnů od jeho provedení jej předložit kupujícímu.

7.9. Jednotlivé servisní zásahy se považují za řádně provedené dnem podepsání protokolu / servisního výkazu ze strany kupujícího.

7.10. Neprovede-li prodávající servisní zásah řádně a včas, je kupující oprávněn zajistit si jeho provedení prostřednictvím jiných dodavatelů, a to nejvýše za cenu na trhu obvyklou, v takovém případě o této skutečnosti prodávajícího neprodleně informuje. Prodávající je následně povinen kupujícímu takto provedený servisní zásah uhradit, a to do 10 dní ode dne doručení faktury prodávajícímu (kupující zároveň předloží kupujícímu doklad

o úhradě servisního zásahu). Od okamžiku oznámení kupujícího prodávajícímu, že bude postupovat dle tohoto odstavce, se doba prodlení prodávajícího s provedením servisního zásahu nezvyšuje.

8. Konzultační služby

8.1. Prodávající se v pracovních dnech od 8.00 do 17.00 h zavazuje kupujícímu poskytovat telefonické konzultační služby týkající se zařízení. Konzultační služby musí být poskytovány v českém jazyce. Kupující je oprávněn využít 12 hodin telefonických konzultací ročně.

9. Odstraňování vad zařízení

9.1. Kupující je v případě vady zařízení povinen vadu prodávajícímu nahlásit a uvést, jak se vada projevuje. Kupující je dále oprávněn uvést, zda vada vylučuje či omezuje klinický provoz zařízení (pokud kupující v konkrétním případě výslovně neuvede jinak, má se za to, že jde o vadu neomezující klinický provoz).

9.2. Prodávající je v případě nahlášení vady zařízení povinen vadu zařízení bezplatně odstranit opravou, příp. dodáním nového bezvadného zařízení (volba náleží prodávajícímu).

9.3. Prodávající je povinen odstranit vadu v následujících termínech:

Vada	Termín pro odstranění vady
vylučující klinický provoz	do 16 hodin od nahlášení vady
omezující klinický provoz	do 24 hodin od nahlášení vady
neomezující klinický provoz	do 48 hodin od nahlášení vady
vada HW aplikačního serveru dle přílohy č. 1 smlouvy	do 16 hodin od nahlášení vady

9.4. V případě, že prodávající prokáže kupujícímu, že je nutné dodat náhradní díly ze zahraničí, prodlužuje se tato lhůta na dvojnásobek a v případě dodání nového bezvadného zařízení na 480 hodin od nahlášení vady.

9.5. Doba pro odstranění vad běží (pouze) v pracovní době kupujícího, tj. pouze v pracovní dny v době od 7.00 do 15.00 h (případné prodlení s odstraněním vady se tedy také počítá pouze v této době).

9.6. Po odstranění vady je prodávající povinen předat kupujícímu servisní výkaz, ve kterém bude vymezena dotčená vada, způsob a čas jejího odstranění. Pokud je vada skutečně odstraněna, kupující servisní výkaz neprodleně potvrdí (podepíše). Vada se považuje za odstraněnou okamžikem uvedeným v servisním výkazu (ze kterého vyplývá, že vada byla odstraněna), pokud tento okamžik není ve výkazu uveden, pak okamžikem potvrzení servisního výkazu kupujícím. V případě, že kupující nebude s obsahem servisního výkazu souhlasit, je oprávněn vznést k výkazu své připomínky. Prodávající je povinen se k těmto vyjádřit nejpozději do 2 dnů ode dne jejich doručení. V případě, že prodávající tyto připomínky akceptuje nebo v případě marného uplynutí uvedené doby, se servisní výkaz považuje za odsouhlasený ve znění připomínek kupujícího. V případě, že připomínky kupujícího prodávající neakceptuje, zavazují se smluvní strany vyvinout maximální součinnost, aby došlo ke shodě. Neposkytnutí součinnosti se považuje za podstatné porušení smlouvy.

9.7. Prodávající se zavazuje, že, bude-li to možné a vhodné, bude odstraňování vad zařízení provádět formou vzdálené správy, a to na základě smlouvy o vzdáleném přístupu uzavřené s kupujícím.

10. Komunikace a oprávnění pracovníků smluvních stran, řešení sporů

10.1. Veškerá jednání a komunikace mezi smluvními stranami bude probíhat přednostně prostřednictvím osob a kontaktních údajů vymezených v příloze č. 3 smlouvy. V této příloze jsou rovněž vymezena oprávnění těchto osob.

10.2. Smluvní strany se zavazují případné spory související se smlouvou řešit přednostně smírnou cestou. Nedojde-li k vyřešení sporu smírnou cestou, je každá ze smluvních stran oprávněna přistoupit k řešení sporu soudní cestou. Smluvní strany v souladu s § 89a zákona č. 99/1963 Sb., občanský soudní řád, ve znění pozdějších předpisů, sjednávají jako místně příslušný soud Městský soud v Brně. Smluvní strany dále sjednávají, že smlouva a veškeré nároky nebo spory vzniklé na jejím základě nebo v souvislosti s ní (včetně mimosmluvních sporů a nároků) se budou řídit českým právem a budou vykládány v souladu s právními předpisy České republiky.

11. Další práva a povinnosti prodávajícího

11.1. Prodávající je povinen poskytovat služby v souladu s právními předpisy (viz také příloha č. 5 smlouvy). Prodávající je v této souvislosti povinen provádět / poskytovat služby výhradně prostřednictvím osob k tomu v souladu se zákonem o zdravotnických prostředcích a dalšími právními předpisy oprávněných.

11.2. Prodávající je povinen před zahájením provádění / poskytování jakékoli služby uvědomit o svém příchodu pověřené osoby kupujícího.

11.3. Prodávající je povinen používat při poskytování služeb dle smlouvy výhradně svoje vlastní zařízení (včetně měřicí techniky) a spotřební materiál.

11.4. Prodávající je povinen předložit kupujícímu roční plán servisních zásahů dle čl. 7. smlouvy vždy nejpozději 1. prosince předchozího roku, nedohodnou-li se smluvní strany jinak.

11.5. Prodávající je povinen vždy alespoň jednou ročně předat kupujícímu novou kopii dokladu prokazujícího registraci osoby provádějící servis u Státního ústavu pro kontrolu léčiv, originál dotčeného dokladu nesmí být ke dni předložení starší než 3 měsíce.

11.6. Prodávající bere na vědomí, že je v souladu s § 2 písm. e) zákona č. 320/2001 Sb., o finanční kontrole ve veřejné správě, osobou povinnou spolupůsobit při výkonu finanční kontroly. Prodávající se zavazuje poskytnout kontrolním orgánům při provádění kontroly maximální součinnost. Prodávající se ke stejnému spolupůsobení a poskytování součinnosti kontrolním orgánům zavazuje zavázat rovněž své poddodavatele.

11.7. Prodávající je po celou dobu plnění svých závazků ze smlouvy povinen zajistit dodržování pracovněprávních předpisů, zejména zákona č. 262/2006 Sb., zákoník práce, ve znění pozdějších předpisů (se zvláštním zřetelem na regulaci odměňování, pracovní doby, doby odpočinku mezi směnami atp.), zákona č. 435/2004 Sb., o zaměstnanosti, ve znění pozdějších předpisů (se zvláštním zřetelem na regulaci zaměstnávání cizinců), vůči všem osobám, které se na plnění těchto závazků podílejí bez ohledu na to, zda jsou plněny bezprostředně prodávajícím či jeho poddodavateli. Nedodržení tohoto závazku je podstatným porušením smlouvy.

11.8. Prodávající se zavazuje zajistit řádné a včasné plnění finančních závazků svým poddodavatelům. Prodávající se zavazuje přenést totožnou povinnost do dalších úrovní dodavatelského řetězce a zavázat své poddodavatele k plnění a šíření této povinnosti též do nižších úrovní dodavatelského řetězce. Kupující je oprávněn požadovat předložení dokladů o provedených platbách poddodavatelům a smlouvy uzavřené mezi prodávajícím a poddodavateli a prodávající je povinen je bezodkladně poskytnout.

11.9. Prodávající se zavazuje zajistit, aby byl při plnění smlouvy minimalizován dopad na životní prostředí, a to zejména tříděním odpadu, úsporou energií, a aby byla respektována udržitelnost či možnosti cirkulární ekonomiky.

11.10. Prodávající prohlašuje, že nebyl ve střetu zájmů dle § 4b zákona č. 159/2006 Sb., o střetu zájmů, ve znění pozdějších předpisů, splnění uvedeného zajistil i u svých poddodavatelů.

11.11. Prodávající prohlašuje, že splňuje požadavky stanovené v Nařízení Rady (EU) 2022/576 ze dne 8. dubna 2022, kterým se mění nařízení (EU) č. 833/2014 o omezujících opatřeních vzhledem k činnostem Ruska destabilizujícím situaci na Ukrajině, v Rozhodnutí Rady (SZBP) 2022/578 ze dne 8. dubna 2022, kterým se mění rozhodnutí 2014/512/SZBP o omezujících opatřeních vzhledem k činnostem Ruska destabilizujícím situaci na Ukrajině, v Prováděcím nařízení Rady (EU) 2022/581 ze dne 8. dubna 2022, kterým se provádí nařízení (EU) č. 269/2014 o omezujících opatřeních vzhledem k činnostem narušujícím nebo ohrožujícím územní celistvost, svrchovanost a nezávislost Ukrajiny, a v Rozhodnutí Rady (SZBP) 2022/582 ze dne 8. dubna 2022, kterým se mění rozhodnutí 2014/145/SZBP o omezujících opatřeních vzhledem k činnostem narušujícím nebo ohrožujícím územní celistvost, svrchovanost a nezávislost Ukrajiny. Splnění uvedeného zajistil i u svých poddodavatelů.

11.12. Prodávající bere na vědomí, že kupující pořizuje zařízení v rámci projektu spolufinancovaného z finančních prostředků EU nebo Státního rozpočtu ČR. Prodávající bere na vědomí, že jakékoli, byť jen částečné, neplnění jeho povinností vyplývajících ze smlouvy, může ohrozit toto spolufinancování, příp. může vést k udělení sankcí kupujícímu ze strany orgánů oprávněných k výkonu kontroly projektu.

11.13. Prodávající bere na vědomí, že je po dobu 15 let ode dne splnění předmětu smlouvy (nestanoví-li právní předpisy v konkrétních případech dobu delší) povinen uchovávat veškerou dokumentaci související s realizací předmětu smlouvy včetně účetních dokladů a poskytovat kupujícímu či oprávněným orgánům maximální možnou součinnost při provádění kontrol projektu včetně předložení této dokumentace požadované kupujícím či oprávněným orgánem.

11.14. Smluvní strany se zavazují, že budou při plnění svých závazků vyplývajících ze smlouvy postupovat v souladu s právními předpisy vztahujícími se k ochraně osobních údajů, zejména v souladu s nařízením Evropského parlamentu a Rady (EU) 2016/679 ze dne 27. dubna 2016 o ochraně fyzických osob v souvislosti se zpracováním osobních údajů a o volném pohybu těchto údajů a o zrušení směrnice 95/46/ES (obecné nařízení o ochraně osobních údajů). Prodávající tímto potvrzuje, že byl v okamžiku získání osobních údajů seznámen kupujícím s informacemi o zpracování osobních údajů pro účely splnění práv a povinností dle smlouvy. Bližší informace o zpracování osobních údajů poskytuje kupující na svých internetových stránkách www.mou.cz v sekci „GDPR a ochrana osobních údajů“.

12. Další práva a povinnosti kupujícího

12.1. Kupující je povinen používat zařízení v souladu s instrukcemi výrobce zařízení uvedenými v dokladech dodaných prodávajícím.

12.2. Kupující je povinen v dohodnutých termínech zajistit, aby zařízení bylo připraveno k provedení servisního zásahu, a umožnit servisnímu technikovi prodávajícího přístup k zařízení.

12.3. Kupující je povinen po celou dobu servisního zásahu na zařízení zajistit přítomnost pověřené osoby a poskytnout prodávajícímu přístrojový deník zařízení.

13. Kupní cena a platební podmínky

13.1. Celková cena za splnění závazků prodávajícího vyplývajících z čl. 2.1. smlouvy (dále jen „kupní cena“) činí:

Kupní cena bez DPH: 36 880 000,00 Kč
DPH 21 %: 7 744 800,00 Kč
Kupní cena včetně DPH: 44 624 800,00 Kč

Rozklad kupní ceny dle jednotlivých položek včetně informace o jednotkových cenách a množství jednotlivých položek je uveden v příloze č. 2 smlouvy.

13.2. Kupní cena zahrnuje veškeré náklady prodávajícího související se splněním dotčených závazků a je stanovena jako konečná a nepřekročitelná. V případě změny sazby DPH se výše kupní ceny včetně DPH a vlastní DPH upraví dle právních předpisů účinných ke dni uskutečnění zdanitelného plnění.

13.3. Kupní cena bude uhrazena na základě faktury vystavené prodávajícím po převzetí zařízení kupujícím s dobou splatnosti do 30 dnů ode dne doručení faktury kupujícímu.

13.4. Cena za poskytování služeb v záruční době činí **13 200,00 Kč bez DPH** / **měsíčně** a po dobu 8 let od skončení záruční doby činí **168 570,00 Kč bez DPH** / **měsíčně** (dále jen „cena služeb“). Rozklad ceny služeb včetně informace o jednotkových cenách je uveden v příloze č. 2 smlouvy.

13.5. V ceně služeb jsou zahrnuty veškeré náklady prodávajícího spojené s plněním smlouvy (včetně cestovních) po dobu 8 let od skončení záruky včetně bezplatné dodávky (výměny) všech potřebných náhradních dílů a součástek (tzv. „full service“).

13.6. Prodávající je oprávněn s účinností od 1. dubna roku, který bezprostředně následuje po kalendářním roce, v němž skončila záruční doba, zvýšit cenu služeb o přírůstek průměrného ročního indexu spotřebitelských cen (dále jen „míra inflace“) vyhlášený Českým statistickým úřadem za předcházející kalendářní rok. Zvýšení ceny je účinné od okamžiku doručení písemného oznámení prodávajícího o zvýšení ceny kupujícímu. Toto oznámení musí obsahovat míru inflace, zvýšenou cenu a podrobnosti výpočtu zvýšení ceny.

13.7. Cena služeb bude hrazena na základě faktur vystavovaných prodávajícím do tří pracovních dní od posledního dne každého kalendářního čtvrtletí), a to zpětně. Cena služeb je splatná do 30 dní ode dne doručení faktury kupujícímu. V případě, že v dotčeném období jsou služby poskytovány pouze v části období, je prodávající oprávněn za toto období fakturovat cenu služeb pouze v poměrné výši. DPH bude dopočítána a uhrazena ve výši dle právních předpisů účinných ke dni uskutečnění zdanitelného plnění.

13.8. Cena za poskytování školení aplikačním specialistou prodávajícího v rozsahu dle čl. 2.3 smlouvy činí **710 480,00 Kč bez DPH** (dále jen „cena školení“). Cena školení bude uhrazena na základě faktury vystavené prodávajícím, a to po dokončení posledního školení aplikačním specialistou. Cena školení je splatná do 30 dnů ode dne doručení faktury kupujícímu.

13.9. Veškeré faktury musí splňovat požadavky daňového dokladu a být v souladu s právními předpisy, zejména se zákonem č. 235/2004 Sb., o dani z přidané hodnoty, ve znění pozdějších předpisů (dále jen „ZoDPH“). Na faktuře musí být uveden název, evidenční číslo veřejné zakázky a registrační číslo projektu: CZ.31.8.0/0.0/0.0/22_042/0007579.

13.10. Nebude-li faktura obsahovat náležitosti dle právních předpisů, popř. bude-li obsahovat jiné chyby či nedostatky, je kupující oprávněn fakturu vrátit, přičemž nová doba splatnosti počíná běžet dnem doručení opravené faktury kupujícímu.

13.11. Bude-li kupující k datu uskutečnění zdanitelného plnění či k datu poskytnutí úplaty za něj dle ZoDPH ručit za nezaplacenou DPH (§ 109 ZoDPH) ze strany prodávajícího, je oprávněn část kupní ceny odpovídající DPH uhradit přímo na bankovní účet příslušného správce daně. Část kupní ceny odpovídající DPH se v takovém případě považuje za uhrazenou.

14. Smluvní sankce

14.1. Kupující je za každý započatý den prodlení s úhradou kupní ceny a ceny služeb povinen uhradit prodávajícímu úrok z prodlení ve výši dle nařízení vlády č. 351/2013 Sb.

14.2. Prodávající je za každý započatý den prodlení s předáním technologického projektu v souladu se smlouvou povinen uhradit kupujícímu smluvní pokutu 10.000 Kč a za každý započatý den prodlení s dodáním zařízení je povinen uhradit kupujícímu smluvní pokutu 10.000 Kč.

14.3. Prodávající je za každý započatý den prodlení kupujícího s vyzváním prodávajícího k dodání zařízení oprávněn vymáhat po kupujícím smluvní pokutu ve výši 2.500 Kč.

14.4. Prodávající je za každou započatou hodinu (resp. každý započatý den) prodlení s odstraněním vady zařízení povinen uhradit kupujícímu smluvní pokutu:

Vada	Smluvní pokuta
vylučující klinický provoz	10.000 Kč za každou započatou hodinu prodlení
omezující klinický provoz	2.000 Kč za každou započatou hodinu prodlení

neomezující klinický provoz	250 Kč za každou započatou hodinu prodlení
vada HW aplikačního serveru dle přílohy č. 1 smlouvy	2.000 Kč za každou započatou hodinu prodlení

14.5. Prodávající je za každý započatý den prodlení s provedením BTK zařízení, elektrické revize zařízení či preventivní údržby zařízení povinen uhradit kupujícímu smluvní pokutu 500 Kč. Způsobí-li toto prodlení vyloučení či omezení klinického provozu zařízení, pak ve výši:

Prodlení	**Smluvní pokuta**
vylučující klinický provoz	20.000 Kč za každý započatý den prodlení
omezující klinický provoz	2.500 Kč za každý započatý den prodlení

14.6. Prodávající je za každý započatý den prodlení s oznámením nebo provedením upgradu nebo updatu softwaru zařízení povinen uhradit kupujícímu smluvní pokutu ve výši 1.000 Kč.

14.7. Prodávající je, nezajistí-li garantovanou dobu využitelnosti zařízení dle čl. 6.8 smlouvy, za každou započatou hodinu pod hranicí této garantované doby využitelnosti povinen uhradit kupujícímu smluvní pokutu ve výši 5.000 Kč.

14.8. V případě prodlení s předložením plánu servisních zásahů dle čl. 7. smlouvy nebo nové kopie dokladu prokazujícího registraci osoby provádějící servis u Státního ústavu pro kontrolu léčiv je prodávající povinen uhradit kupujícímu smluvní pokutu ve výši 500 Kč za každý započatý den prodlení.

14.9. V případě nesplnění jiného závazku plynoucího ze smlouvy je prodávající povinen zaplatit kupujícímu smluvní pokutu ve výši 1.000 Kč za každé dílčí porušení dotčeného závazku.

14.10. Prodávající je povinen uhradit kupujícímu smluvní pokutu do 10 dnů ode dne doručení jejího vyúčtování prodávajícímu.

14.11. Zaplacení jakékoli z výše uvedených smluvních pokut se nedotýká nároku kupujícího na náhradu škody ve výši přesahující smluvní pokutu.

15. Platnost a účinnost smlouvy, změny smlouvy

15.1. Smlouva nabývá platnosti dnem jejího podpisu oběma smluvními stranami a účinnosti jejím zveřejněním dle zákona č. 340/2015 Sb., o registru smluv, ve znění pozdějších předpisů (dále jen „zákon o registru smluv“).

15.2. Smluvní strany souhlasí se zveřejněním smlouvy a případných dohod (dodatků), kterými se smlouva doplňuje, mění, nahrazuje nebo ukončuje, a to zejména v registru smluv v souladu se zákonem o registru smluv. Smlouvu v registru smluv uveřejní kupující, kupující správnost uveřejnění do jednoho měsíce od uzavření smlouvy ověří.

15.3. Plnění předmětu smlouvy před účinností smlouvy se považuje za plnění dle smlouvy a práva a povinnosti z něj vzniklé se řídí smlouvou.

15.4. Smlouvu lze změnit výhradně dohodou smluvních stran v písemné formě podepsanou oběma smluvními stranami, přednostně prostřednictvím vzestupně číslovaných dodatků. Výjimkou je změna adresy sídla a kontaktních údajů, v takovém případě postačuje oznámení dotčené smluvní strany doručené v písemné formě druhé smluvní straně, v případě změny adresy sídla spolu s doklady prokazujícími oznamovanou změnu; ke změně smlouvy dochází dnem doručení oznámení druhé smluvní straně.

15.5. Prodávající je oprávněn převést svoje práva a povinnosti ze smlouvy vyplývající na jinou osobu pouze s písemným souhlasem kupujícího.

15.6. Smluvní strany se nad rámec § 576 občanského zákoníku pro případ neplatnosti některého z ustanovení smlouvy či celé smlouvy zavazují, že si poskytnou potřebnou součinnost k uzavření dohody, kterou by dotčené ustanovení, případně celou smlouvu, nahradily tak, aby obsah a účel smlouvy zůstal v nejvyšší možné míře zachován.

15.7. Každá ze smluvních stran je oprávněna od smlouvy odstoupit v případě podstatného porušení smlouvy druhou smluvní stranou. Na straně kupujícího se za podstatné porušení smlouvy považuje jeho prodlení s úhradou kupní ceny přesahující 60 dnů. Na straně prodávajícího se za podstatné porušení smlouvy považuje zejména jeho prodlení s řádným dodáním zařízení přesahujícím 30 dnů a situace popsaná v čl. 6.5. smlouvy.

15.8. Kupující je oprávněn smlouvu v rozsahu poskytování služeb vypovědět (nejdříve však po skončení záruční doby), a to i bez udání důvodu, s šestiměsíční výpovědní lhůtou, která počíná běžet prvního dne měsíce bezprostředně následujícího po měsíci, ve kterém je písemná výpověď kupujícího doručena prodávajícímu.

16. Závěrečná ustanovení

16.1. Součástí smlouvy jsou její přílohy:
- Příloha č. 1 – Technická specifikace zařízení, projektová dokumentace místa plnění,
- Příloha č. 2 – Rozklad kupní ceny a ceny služeb,
- Příloha č. 3 – Kontaktní údaje,
- Příloha č. 4 – DICOM Conformance Statement,

- Příloha č. 5 – Kopie dokladu prokazujícího registraci osoby provádějící servis u Státního ústavu pro kontrolu léčiv,
- Příloha č. 6 – Seznam úkonů preventivní údržby.

16.2. Smluvní strany prohlašují, že si smlouvu před jejím podpisem přečetly a že s jejím obsahem souhlasí.

V Brně dne 15-07-2025

V Praze dne 01-07-2025

[redacted]

za kupujícího:
prof. MUDr. Marek Svoboda, Ph.D.
ředitel Masarykova onkologického ústavu

za prodávajícího:
Mgr. Michal Čech a Ing. Karel Kopejtko
jednatelé Siemens Healthcare, s.r.o.

Příloha č. 1a

Technická specifikace zařízení

OBECNÉ POŽADAVKY		
Požadavek:	**Splnění**	**Poznámky**
Klinický přístroj pro celotělové použití.	ano	
Zařízení je nepoužité, nerepasované, neupgradované, nové (ke dni předání ne starší než 12 měsíců ode dne výroby).	ano	
CT SKENER		
Požadavek:	**Splnění**	**Poznámky**
Skener s fyzikálním principem detekce photon-counting.	ano	
Otvor gantry min. 80 cm.	ano	82 cm
Výkon vysokonapěťové části generátoru min. 100 kW.	ano	120 kW
Minimální rozsah napětí rentgenky 70–140 kV.	ano	70-140 kV
Počet ohnisek min. 2	ano	3
Anodový proud rentgenky v rozsahu 15–1300 mA.	ano	10-1300 mA
Přídavná filtrace pro redukci nízkoenergetických fotonů.	ano	
Tepelná kapacita rentgenky, ekvivalent min. 30 MHU. Chladící výkon anody RTG zářiče minimálně 1800 kHU/min.	ano	30 MHU, 2700 kHU/min
Nosnost vyšetřovacího stolu minimálně 250 kg.	ano	307 kg
Automatická optimalizace nastavení polohy pacienta při skenování, horizontální i vertikální.	ano	
Parametry a typy akvizic		
Požadavek:	**Splnění**	**Poznámky**
Akviziční stanice: • 2× barevný medicínský LCD monitor min. 24“ pro nastavení akvizice a zobrazení snímků • Plná DICOM 3.0 konektivita a funkce DICOM Storage, Print, Query/Retrieve, Worklist, Dose Report, DICOM Send (dle DICOM Conformance Statement zadavatele) včetně automatického rozesílání studií do PACS a na multimodalitní portálový server • Základní ovládací software pro přístroj umožňující simultánní práci s více pacienty v režimu akvizice, zpracování a dokumentace.	ano	2 x 24“
Nejkratší doba rotace rentgenky v gantry o 360° max. 250 ms.	ano	250 ms
Počet řad detektorových elementů v ose Z minimálně 256.	ano	288
Počet simultánně získaných datových stop při akvizici – minimálně 128.	ano	144
Počet rekonstruovaných vrstev z jedné 360° rotace minimálně 256.	ano	288
Rozsah skenu v ose Z min. 180 cm	ano	200 cm
Velikost detektorového elementu nebo sektoru elementů, který dává vzniknout jedné datové stopě, maximální velikost 0,4 mm při použití celé šíře detektoru.	ano	0,4 mm
Nejmenší velikost detektorového elementu max 0,2 mm pro zobrazení s nejvyšším rozlišením v izocentru.	ano	0,2 mm
Automatická modulace proudu v podélné ose (osa Z) a současně v axiální rovině (rovina XY).	ano	
Dávková modulace - napětí - automatické nastavení kV podle stavby těla pacienta pro optimalizaci kontrastu a redukci radiační dávky.	ano	
Kombinovaná automatická modulace dávky prostřednictvím kontinuálního přizpůsobování proudu na rentgence, a to jak v průběhu 360° rotace, tak i v ose Z – úhlová i podélná, orgánová modulace.	ano	
Adaptivní stínění pomocí dynamických kolimátorů (HW nástroj pro redukci dávky a restrikci záření v okrajích, resp. mimo vyšetřovanou oblast).	ano	
Registrace dat absorpce záření s různou energií.	ano	

Automatická volba napětí.	ano	
Orgánová modulace proudu.	ano	
Dynamická akvizice pro perfuzní vyšetření mozku, hrudníku nebo jater po dobu minimálně 60 s	ano	200 s
Dynamické skenování (průběh plnění cév, 4D CTA).	ano	
Spektrální zobrazení.	ano	
Přednastavené a optimalizované vyšetřovací protokoly dle anatomických oblastí a indikací (optimalizace bude provedena po instalaci).	ano	

REKONSTRUKČNÍ PARAMETRY		
Požadavek:	**Splnění**	**Poznámky**
Maximální velikost diagnostického DFOV minimálně 500 mm.	ano	500 mm
Rekonstrukční matice min. 512 × 512 a 1024 × 1024, možnost dalších rekonstrukčních maticí.	ano	512x512 1024x1024
Nejužší rekonstruovatelná vrstva zobrazení 0,2 mm v oblasti hlavy, trupu i končetin.	ano	0,2 mm
Iterativní rekonstrukce poslední generace, potlačení vysokokontrastních artefaktů z kovového materiálu.	ano	
Pro následné vyhodnocení nálezů generování datových souborů pro multienergetické zobrazení, virtuální nativní zobrazení, mapa distribuce jodu.	ano	
Pro následné vyhodnocení nálezů generování datových souborů se subtrakcí kalcia z dat při zachování signálu jodové kontrastní látky.	ano	
Pro následné vyhodnocení nálezů generování datových souborů se zobrazením kalcia z dat po subtrakci signálu jodové kontrastní látky.	ano	
Automatická rekonstrukce sérií MPR a MIP volitelné šíře dle orgánových programů.	ano	
Software pro časování a optimalizaci vstřiku kontrastní látky musí umožňovat automatický start akvizice při dosažení prahové hodnoty, automatické spuštění tlakového injektoru kontrastní látky – bolus timing, bolus tracking.	ano	
Základní obrazové zpracování: 2D, MPR, MIP, MinIP, 3D.	ano	

FORMÁT DAT A JEJICH DALŠÍ ZPRACOVÁNÍ		
Požadavek:	**Splnění**	**Poznámky**
Výstupní data ve formátu DICOM3.	ano	
Služby DICOM3 Send, Storage Commitment, Query/Retrieve, Worklist (komunikace přes HL7), SR, MPPS.	ano	
Připojení k počítačové síti kupujícího a kompatibilita s PACS (dle DICOM Conformance Statement).	ano	
Zobrazení a archivace (v PACS) strukturované zprávy o dávce záření – radiation dose structured reportu, tj. v DICOM objektu s tagem „Media Storage SOP Class“ rovným „X-Ray Radiation Dose SR“ a ukládání a vyplnění tagu „Irradiation Event UID“ v obrazových datech.	ano	
Secondary capture Radiation Dose SR.	ano	

DIAGNOSTICKÝ APLIKAČNÍ SERVER PRO ZPRACOVÁNÍ OBRAZOVÝCH DAT		
Požadavek:	**Splnění**	**Poznámky**
Diagnostický aplikační server pro zpracování obrazových dat kompatibilní se zařízením a splňující níže uvedené požadavky (tento požadavek lze také splnit upgradem stávajícího hardwaru a softwaru stávajících diagnostických serverů (portálů) kupujícího dle specifikace uvedené v příloze č. 1c smlouvy, v případě využití této možnosti ji prodávající uvede do sloupce „Poznámky“).	ano	upgrade
Komplexní diagnostický systém nahrazující dedikované diagnostické stanice v plném rozsahu, tedy pro 2D zobrazení, 3D rendering (MPR, MIP, VRT, CPR, fotorealistické rekonstrukce) i kompletní pokročilé možnosti vizualizace na vzdálených klientských stanicích bez potřeby importu zpracovávaných studií na klientské stanice.	ano	
Systém musí odpovídat požadované funkcionalitě, především na rychlost zpracování dat při práci na větším množství klientských stanic najednou.	ano	

Plná DICOM3 konektivita (Store, Query/Retreive, Print), dle DICOM Conformance Statement kupujícího.	ano	
POŽAVKY NA HW APLIKAČNÍHO SERVERU		
Požadavek:	**Splnění**	**Poznámky**
Instalace diagnostického serveru do racku.	ano	
Úložná kapacita systému diagnostického serveru min. 15TB SSD.	ano	15 TB SSD
Operační paměť min. 384 GB.	ano	384 GB
Množství současně zpracovávaných obrazů: minimálně 40000.	ano	92000
Redundance všech klíčových součástí serveru – zdroj, CPU, HDD.	ano	
Pro bezpečnost dat – konfigurace úložné kapacity serveru min. RAID5.	ano	
Komunikace s PACS MOÚ dle DICOM Conformance Statement kupujícího, síťový protokol TCP/IP, síťová karta minimálně 1 Gb/s.	ano	
POŽADAVKY NA SW (vč. dodání nezbytných licencí)		
Požadavek:	**Splnění**	**Poznámky**
Onkologické aplikace - Segmentace ložisek v různých orgánech (pro alespoň 2 souběžně pracující uživatele) - Analýza jater včetně segmentace, hodnocení cévního zásobení a plánování operací (pro alespoň 2 souběžně pracující uživatele) - Sledování ložisek v čase (pro alespoň 2 souběžně pracující uživatele) - Automatická detekce plicních uzlů (pro alespoň 2 souběžně pracující uživatele) - CT virtuální kolonografie včetně pokročilých aplikací pro hodnocení a automatické detekce polypů (pro alespoň 2 souběžně pracující uživatele) - Perfuze orgánů těla (pro alespoň 2 souběžně pracující uživatele) - Nástroj pro usnadnění hodnocení skeletu (pro alespoň 2 souběžně pracující uživatele)	ano	
Analýza spektrálních dat - Obecná práce se spektrálními daty včetně monoenergetického zobrazení a virtuálně nekontrastního zobrazení (uživatel) - Aplikace pro spektrální CTA s možností detekce odstranění kalcifikovaných plátů a skeletu (1 uživatel) - Aplikace pro využití hodnocení koncentrace jódu v oblasti plic, srdce a mozku (1 uživatel) - Aplikace pro analýzu dalších materiálů pomocí spektrálního zobrazení (1 uživatel)	ano	
Neurologické aplikace - Automatické stanovení ASPECT skóre (1 uživatel) - Hodnocení cévního zásobení mozku (1 uživatel) - Dynamická angiografie mozku (1 uživatel) - Perfuze mozku (1 uživatel)	ano	
Další aplikace - Automatická segmentace plic a analýza denzity (1 uživatel)	ano	
Všechny výše zmíněné analýzy obrazů musí být archivovatelné v PACS	ano	
Aplikace ve vývoji - Přístup k aplikacím výrobce zařízení ve vývoji (nástroje umělé inteligence).	ano	
Obecně - Nejpokročilejší AI nástroje výrobce zařízení pro preventivní vyšetření a diagnostiku využitelné v onkologii, vč. veškerých softwarových funkcí a modulů odpovídajících nejvyšší dostupné úrovni v rámci nabídky výrobce. Platí ustanovení čl. 2.2. smlouvy – provádění upgradu a updatu zařízení. - Kompletní SW vybavení pro onkologii pro dva souběžně pracující uživatele – virtuální kolonoskopie včetně automatického vyhledávání lézí, perfuzní vyhodnocení lézi v těle, měření velikosti lézí a jejich porovnání v čase, automatické vyhledání plicních lézí, segmentace plic a vyhodnocení emphysemu, vyhodnocení víceenergetických dat.	ano	

OSTATNÍ POŽADAVKY		
Požadavek:	**Splnění**	**Poznámky**
Monitorovací kamerový systém pro sledování pacienta během vyšetření. Minimálně 2 kamery, při každé poloze pacienta musí být nejméně na jedné kameře dobře viditelný.	ano	
Monitorovací kamerový systém pro sledování přípravny. Minimálně 1 kamera. Zobrazení obrazu na monitoru společně se dvěma obrazy z vyšetřovny.	ano	
Monitorovací kamerový systém pro sledování čekárny. Minimálně 2 kamery.	ano	
3D kamera sloužící k automatickému polohování pacienta součástí dodávky.	ano	
Záložní zdroj pro ukončení datového provozu kompletu v případě výpadku el. sítě (funkční obrazový počítač, uložení dat).	ano	
Komunikační zařízení operátor → pacient a zpět.	ano	
Pomůcky a příslušenství, jejichž specifikace je dána konkrétním zařízením a předpisem výrobce a které jsou nutné pro provádění kvalitativních testů a ověřování technických parametrů zařízení, předepsaných výrobcem a prováděných odbornou obsluhou.	ano	
CT injektor kontrastní látky. • Automatický peristaltický pojízdný injektor pro aplikaci kontrastních látek • Programovatelná rychlost dávkování 0,1–10 ml/sec v 0,1ml krocích. • Programovatelná rychlost dávkování 0,1–10 ml/sec v 0,1ml krocích. • Bezdrátová komunikace s ovládací konzolí. • Možnost použití souběžně dvou různých kontrastních látek v originálních obalech bez nutnosti výměny spotřebního materiálu po dobu min. 24 hodin. • Síťové napájení i bateriové napájení (integrované akumulátory). • Použití a uchycení různých velikostí lahví s KL (50–500 ml). • Možnost propojení s CT (kupované zařízení) a PACS.	ano	
Elektrický rozvaděč.	ano	
Fantomy, jejich držáky a ostatní pomůcky pro provádění zkoušek provozní stálosti doporučených výrobcem a českou legislativou.	ano	

NAEOTOM Alpha.Prime

Popis produktu

Název produktu: NAEOTOM Alpha.Prime

Pol. č.: 1

Obj. číslo: 14500209

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

Název produktu: SW Base Package

Pol. č.: 2

Obj. číslo: 14500211

[redacted]

P

[redacted]

Název produktu: myExam Companion

Pol. č.: 3

Obj. číslo: 14468422

[redacted]

Název produktu: syngo Expert-i

Pol. č.: 4

Obj. číslo: 14468479

[redacted]

Název produktu: Power configuration

Pol. č.: 5

Obj. číslo: 14500212

[redacted]

Název produktu: Mattress for PHS 2000mm

Pol. č.: 6

Obj. číslo: 14468262

P[redacted]

Název produktu: Accessory tray

Pol. č.: 7

Obj. číslo: 14468306

[redacted]

Název produktu: Patient Table 2000mm / 307kg

Pol. č.: 8

Obj. číslo: 14472684

[redacted]

Název produktu: Foot Switch for Pat.Table control

Pol. č.: 9

Obj. číslo: 14468006

[redacted]

Název produktu: Table Extension

Pol. č.: 10

Obj. číslo: 14468007

[redacted]

Název produktu: Mattress Protector short

Pol. č.: 11

Obj. číslo: 14468305

[redacted]

Název produktu: Paper Roll Holder

Pol. č.: 12

Obj. číslo: 14468308

[redacted]

Název produktu: 2nd Control-room Monitor

Pol. č.: 13

Obj. číslo: 14468017

[redacted]

Název produktu: Cooling System Water/Air #split

Pol. č.: 14

Obj. číslo: 14472692

T[redacted]

Název produktu: ALON-UPS incl. Rack and Cabinet

Pol. č.: 15

Obj. číslo: 14472694

[redacted]

Název produktu: CARE Contrast III

Pol. č.: 16

Obj. číslo: 14468009

[redacted]

Název produktu: Quantum 4D Imaging

Pol. č.: 17

Obj. číslo: 14482565

[redacted]

Název produktu: Quantum Pure Lumen

Pol. č.: 18

Obj. číslo: 14472674

[redacted]

Název produktu: Quantum Stroke Reading

Pol. č.: 19

Obj. číslo: 14500185

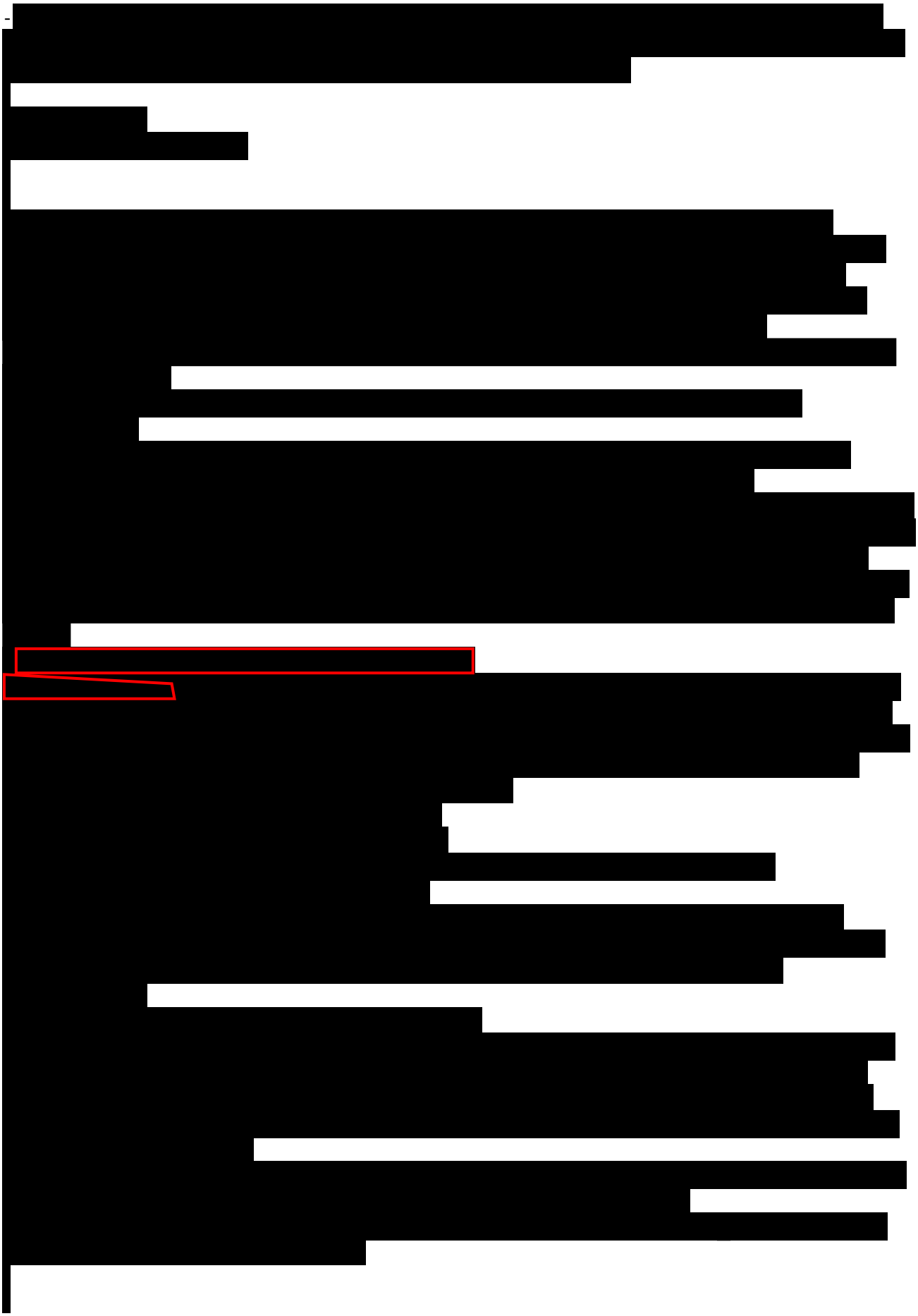
[redacted]

Název produktu: Quantum Imaging

Pol. č.: 20

Obj. číslo: 14500386

[redacted]



Název produktu: Quantum Lung Analysis

Pol. č.: 21

Obj. číslo: 14482292

[redacted]

Název produktu: Quantum Direct Angio

Pol. č.: 22

Obj. číslo: 14500081

[redacted]

Název produktu: Quantum Hardplaque Display

Pol. č.: 23

Obj. číslo: 14500163

V[redacted]

Název produktu: Quantum HD

Pol. č.: 24

Obj. číslo: 14500224

[redacted]

Název produktu: Wireless edition

Pol. č.: 25

Obj. číslo: 14472687

[redacted]

Název produktu: Extra tablet front

Pol. č.: 26

Obj. číslo: 14472689

[redacted]

Název produktu: Docking station for gantry tablet

Pol. č.: 27

Obj. číslo: 14472905

[redacted]

Název produktu: FAST 3D Camera

Pol. č.: 28

Obj. číslo: 14500187

[redacted]

[redacted]

Název produktu: Patient Experience

Pol. č.: 29

Obj. číslo: 14482301

[redacted]

Název produktu: Computer Desk 1200 mm

Pol. č.: 30

Obj. číslo: 14468388

[redacted]

Syngo.via diagnostický server

Název produktu: Server HW Config Performance

Pol. č.: 1

Obj. číslo: 14484718

[redacted]

- [redacted]

Název produktu: syngo.via VB80

Pol. č.: 2

Obj. číslo: 14481336

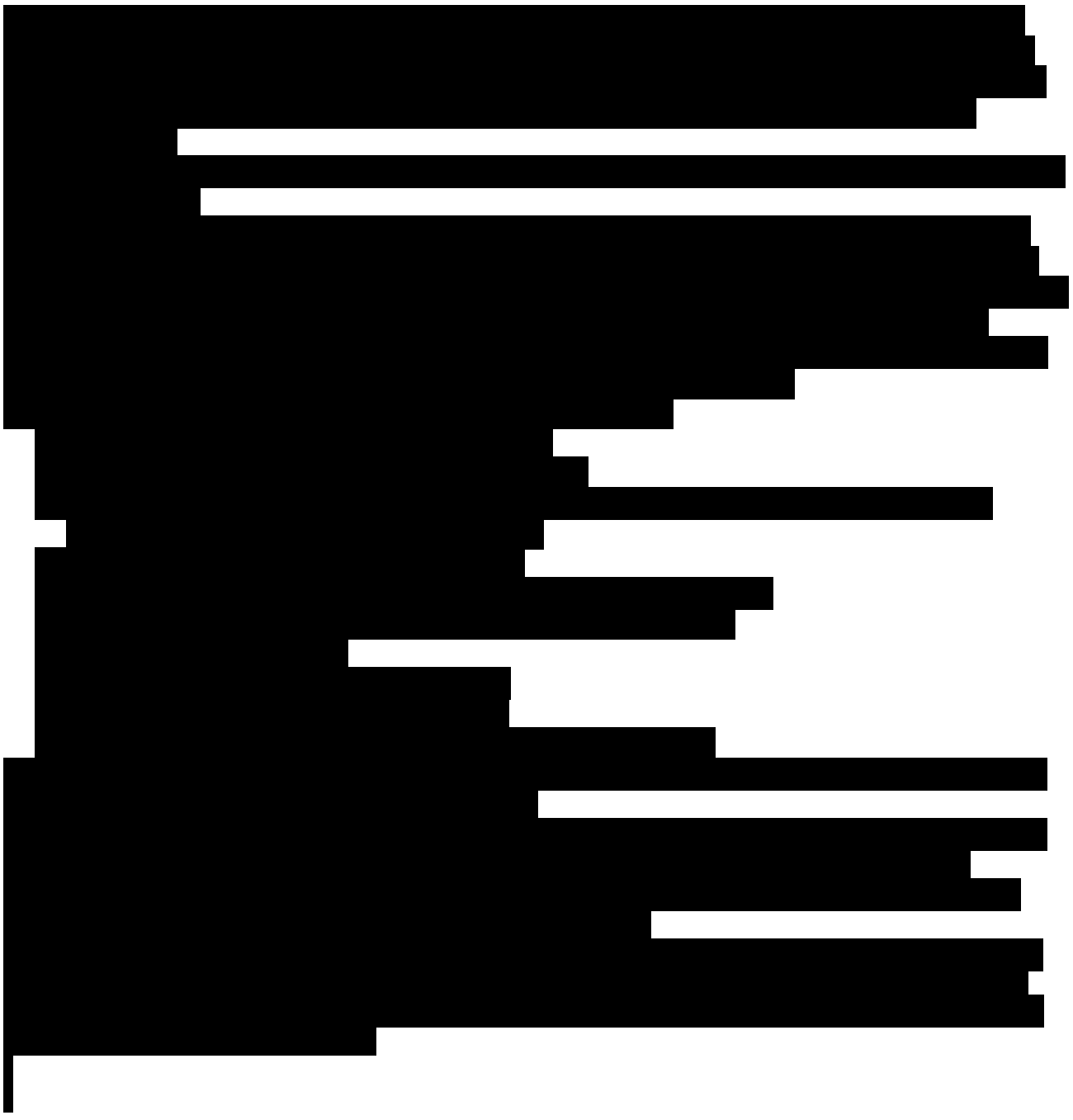
[redacted]

[redacted]

Název produktu: syngo.CT Neuro Perfusion #1

Pol. č.: 3

Obj. číslo: 14482229



Název produktu: syngo.CT Oncology #1

Pol. č.: 4

Obj. číslo: 14482234

[redacted]

Název produktu: syngo.CT Vascular Analysis #1

Pol. č.: 5

Obj. číslo: 14473005

Název produktu: syngo.CT ASPECTS #1

Pol. č.: 6

Obj. číslo: 14481987

Název produktu: syngo.CT Dynamic Angio #1

Pol. č.: 7

Obj. číslo: 14473082

Název produktu: syngo.CT Vascular Autotracer #1

Pol. č.: 8

Obj. číslo: 14473073

Název produktu: syngo.CT Liver Analysis #1

Pol. č.: 9

Obj. číslo: 14473125

S

Název produktu: syngo.CT DE Lung Analysis #1

Pol. č.: 10

Obj. číslo: 14472587

Název produktu: syngo.via Frontier

Pol. č.: 11

Obj. číslo: 14478454

[redacted]

Příslušenství:

Název produktu: Rozvaděč

Pol. č.: L1

Obj. číslo: 58039081

[redacted]

Název produktu: Injektor Ulrich Monitor

Pol. č.: L2

Obj. číslo: 58037694

[redacted]

Název produktu: Monitorovací systém

Pol. č.: L3

Obj. číslo: 58073072

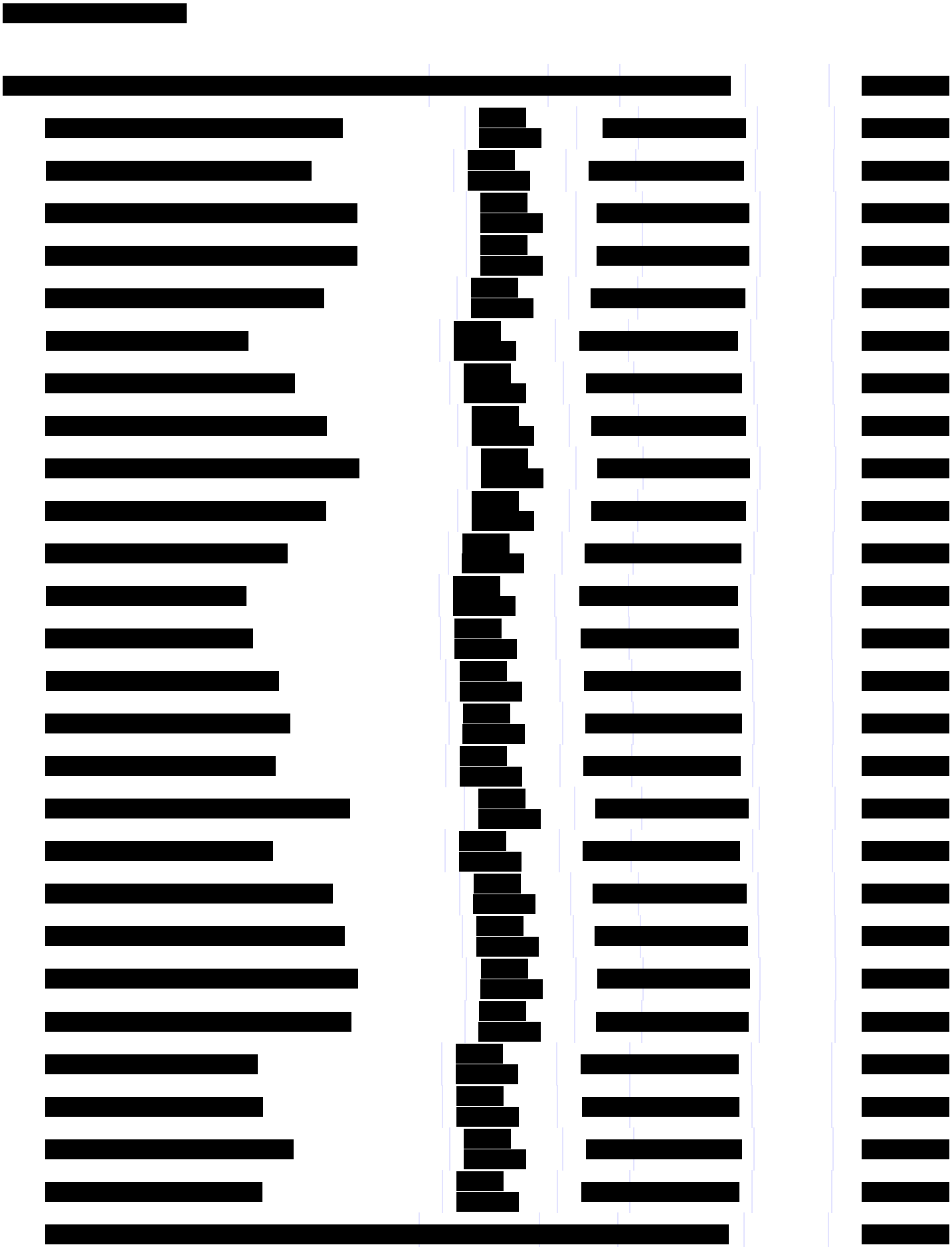
[redacted]

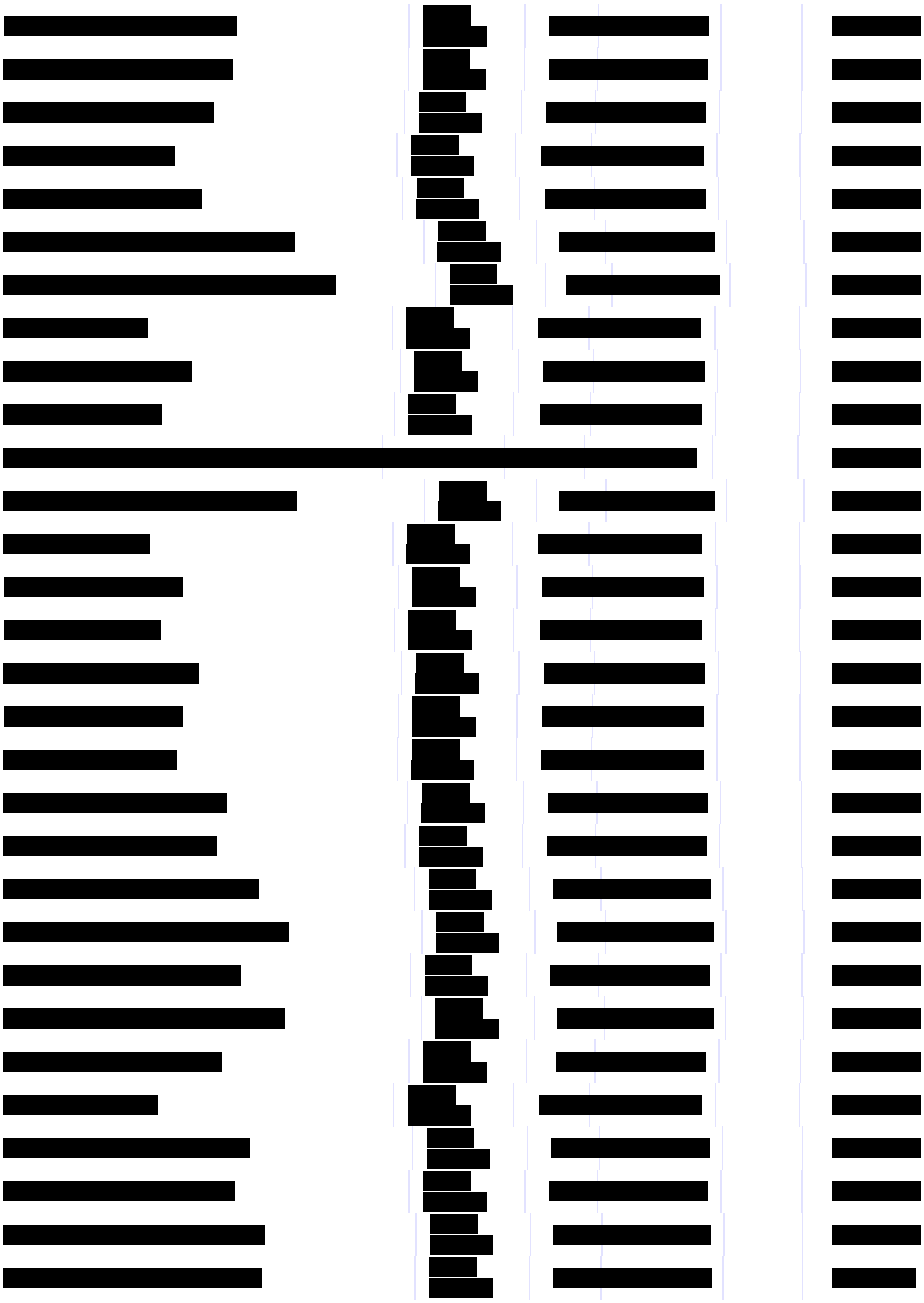
Příloha č. 1b
Specifikace stávajícího vybavení kupujícího

(uvedeno na dalších stránkách smlouvy)

SyngoVia HW a SW

[redacted]





[redacted]

[redacted]

Příloha č. 1c
Projektová dokumentace místa plnění

(Tato příloha je s ohledem na svůj formát a strukturu uvedena v samostatném souboru - neuveřejněno v souladu s § 3 odst- 2 písm. b) zákona č. 340/2015 Sb.

Příloha č. 2

Rozklad kupní ceny a ceny služeb

Kupní cena

Položka (popis položek)	Počet MJ	Cena za MJ (Kč bez DPH)	Cena celkem (Kč bez DPH)	21% DPH (Kč)	Cena celkem (Kč vč. DPH)
NAEOTOM Alpha.Prime (včetně dodání, instalace / montáže a uvedení zařízení do provozu)	1	[redacted]			
technologický projekt	1				
Injektor Ulrich Motion	1				
Školení / instruktáž k zařízení (v rozsahu dle čl. 2.1 smlouvy)					

Cena celkem (Kč bez DPH)	**36 880 000,00**
Cena celkem (Kč včetně DPH)	**44 624 800,00**

Cena školení aplikačním specialistou

Položka (popis položek)	Cena celkem (Kč bez DPH)	21% DPH (Kč)	Cena celkem (Kč vč. DPH)
Školení aplikačním specialistou v rozsahu dle čl. 2.3 smlouvy	[redacted]		

Cena služeb

Záruční služby

Položka	MJ	Cena za 1 MJ (Kč bez DPH)
Provádění bezpečnostně technických kontrol zařízení (BTK)	1 měsíc	[redacted]
Provádění zkoušek dlouhodobé stability zařízení	1 měsíc	
Provádění elektrických revizí	1 měsíc	
Provádění preventivní údržby zařízení	1 měsíc	
Provádění upgradu a updatu softwaru zařízení	1 měsíc	
Poskytování konzultačních služeb k zařízení	1 měsíc	

Pozáruční služby

Položka	MJ	Cena za 1 MJ (Kč bez DPH)
Provádění bezpečnostně technických kontrol zařízení (BTK)	1 měsíc	
Provádění zkoušek dlouhodobé stability zařízení	1 měsíc	
Provádění elektrických revizí	1 měsíc	
Provádění preventivní údržby zařízení	1 měsíc	

Provádění upgradu a updatu softwaru zařízení	1 měsíc	[redacted]
Poskytování konzultačních služeb k zařízení	1 měsíc	[redacted]
Odstraňování vad zařízení	1 měsíc	[redacted]

Příloha č. 3

Kontaktní údaje

Kupující				
Funkce / oblast	**Jméno**	**Pracovní zařazení**	**Telefon**	**E-mail**
Projekční práce	[redacted]			
Dodání zařízení				
Převzetí zařízení				
Řešení vad				
Služby				
Prodávající				
Funkce / oblast	**Jméno**	**Pracovní zařazení**	**Telefon**	**E-mail**
Projekční práce	[redacted]			
Dodání zařízení				
Předání zařízení				
Řešení vad				
Služby				
Oblast	**Název aplikace**	**Webová adresa**	**Poznámky**	
Reklamace vad	Helpdesk		[redacted]	

Příloha č. 4

DICOM Conformance Statement

AMIS*PACS FlexServer G2

DICOM Conformance Statement

version 2.22.04-REL, released 2020-10-16

ICZ a.s. Na hřebenech II 1718/10 140 00 Praha 4 - Nusle

CE 1023

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INTRODUCTION

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This is the DICOM 3.0 Conformance Statement for AMIS*PACS FlexServer G2 software produced by ICZ a.s.

1. REVISION HISTORY

Date	Document Internal Revision	APFS Product Release	Major changes
2020-01-27	2.21@{2020-01-27}	2.21.12-REL	APFS released
2019-08-16	2.21@{2019-08-16}	2.21.05-REL	APFS released
2019-03-22	2.20@{2019-03-22}	2.20.02-REL	APFS released
2018-10-31	2.19@{2018-10-31}	2.19.10-REL	APFS released
2018-03-02	2.18@{2018-03-02}	2.18.04-REL	APFS released
2017-06-12	2.17@{2017-06-12}	2.17.08-REL	APFS released
2017-05-10	2.17@{2017-05-10}	2.17.06-REL	APFS released
2017-04-25	2.17@{2017-04-25}	2.17.04-REL	APFS released
2017-04-07	master@{2017-04-07}	no public release	1.2.840.10008.5.1.4.1.1.481.8 (RT Ion Plan Storage) and 1.2.840.10008.5.1.4.1.1.66.4 (Segmentation Storage) SOP Classes added
2016-09-27	2.16@{2016-09-30}	2.16.04-REL	APFS released
2016-05-30	2.15@{2016-05-30}	2.15.03-REL	APFS released
2016-05-10	2.14@{2016-05-10}	2.14.08-REL	APFS released
2016-02-09	master@{2016-02-09}	no public release	More matching keys in C-FIND and C-MOVE
2015-12-05	2.13@{2015-12-05}	2.13.07-REL	APFS released
2015-11-10	2.13@{2015-11-10}	2.13.05-REL	APFS released
2015-02-01	2.13@{2015-02-01}	2.13.03-REL	APFS released
2014-12-01	2.12@{2014-12-01}	2.12.04-REL	APFS released
2014-09-08	master@{2014-09-08}	no public release	Change Implementation Version Name
2014-07-30	2.11@{2014-07-30}	2.11.04-REL	APFS released

Date	Document Internal Revision	APFS Product Release	Major changes
2014-04-01	master@{2014-04-01}	no public release	1.2.840.10008.1.2.4.102 (MPEG-4 AVC/H.264 High Profile / Level 4.1) Transfer Syntax added
2014-03-31	master@{2014-03-31}	no public release	More matching keys in Worklist C-FIND
2014-03-18	2.10@{2014-03-18}	2.10.04-REL	APFS released
2014-02-06	2.9@{2014-02-06}	2.09.05-REL	APFS released
2013-11-02	2.8@{2013-11-02}	2.08.05-REL	APFS released
2013-09-23	2.7@{2013-09-23}	2.07.08-REL	APFS released
2013-08-29	2.7@{2013-08-29}	2.07.06-REL	APFS released
2013-08-20	2.7@{2013-08-20}	no public release	Text unchanged. The revision number system changed as a consequence of migration of the source code repository.
2013-06-19	2.130.00	2.06.05-REL	APFS released
2013-04-06	2.104.03	2.05.07-REL	APFS released
2013-02-07	2.86.00	no public release	C-FIND SCU supports Number of Study Related Series and Number of Study Related Instances. Many typos fixed.
2013-02-07	2.83.03-p1	2.04.07-REL	APFS released
2012-11-30	2.83.03	2.04.05-REL	APFS released
2012-09-06	2.67.00	no public release	C-FIND SCP supports Series Description
2012-07-02	2.65.00	2.03.07-REL	APFS released
2012-05-24	2.51.00	no public release	C-FIND SCP supports Number of Study Related Series and Number of Study Related Instances
2012-05-24	2.50.00	no public release	C-FIND and C-MOVE SCU added
2012-04-30	2.45.00	2.02.07-REL	APFS released
2012-01-13	2.32.00	2.01.08-REL	APFS released

Date	Document Internal Revision	APFS Product Release	Major changes
2011-07-20	2.18.00	2.00.08-REL	APFS released
2011-05-20	2.14.00	no public release	Implementation Class UID changed
2011-02-07	0.48.00	no public release	initial text

2. AUDIENCE

This document is intended for hospital staff, health system integrators, software designers or implementers. It is assumed that the reader has a working understanding of DICOM.

3. REMARKS

DICOM does not guarantee interoperability. However, the Conformance Statement facilitates a first-level validation for interoperability between applications supporting the same DICOM functionality.

This Conformance Statement is not intended to replace validation with other DICOM equipment to ensure compatibility.

4. DEFINITIONS, TERMS AND ABBREVIATIONS

APFS refers to *AMIS*PACS FlexServer G2*.

Service Guide refers to the *AMIS*PACS FlexServer G2 - Service Guide* manual distributed with APFS.

Administrator Guide refers to the *AMIS*PACS FlexServer G2 - Administrator Guide* manual distributed with APFS.

User Guide refers to the *AMIS*PACS FlexServer G2 - User Guide* manual distributed with APFS.

Chapter 1. CONFORMANCE STATEMENT OVERVIEW

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APFS is software intended to run as an archive of medial images and worklist server. It is based on the DICOM v3.0 standard.

1.1. NETWORK SERVICES

The following table provides an overview of the network services supported by APFS

1.1.1. Transfer

Table 1.1. Network services

SOP Classes	User of Service (SCU)	Provider of Service (SCP)
Computed Radiography Image Storage	Yes	Yes
Basic Study Content Notification SOP Class (Retired)	Yes	Yes
Stored Print Storage SOP Class (Retired)	Yes	Yes
Hardcopy Grayscale Image Storage SOP Class (Retired)	Yes	Yes
Hardcopy Color Image Storage SOP Class (Retired)	Yes	Yes
Computed Radiography Image Storage	Yes	Yes
Digital X-Ray Image Storage – For Presentation	Yes	Yes
Digital X-Ray Image Storage – For Processing	Yes	Yes
Digital Mammography X-Ray Image Storage – For Presentation	Yes	Yes
Digital Mammography X-Ray Image Storage – For Processing	Yes	Yes
Digital Intra-oral X-Ray Image Storage – For Presentation	Yes	Yes
Digital Intra-oral X-Ray Image Storage – For Processing	Yes	Yes
Standalone Modality LUT Storage (Retired)	Yes	Yes
Encapsulated PDF Storage	Yes	Yes
Standalone VOI LUT Storage	Yes	Yes
Grayscale Softcopy Presentation State Storage SOP Class	Yes	Yes
Color Softcopy Presentation State Storage SOP Class	Yes	Yes
Pseudo-Color Softcopy Presentation State Storage SOP Class	Yes	Yes
Blending Softcopy Presentation State Storage SOP Class	Yes	Yes
X-Ray Angiographic Image Storage	Yes	Yes
Enhanced XA Image Storage	Yes	Yes

SOP Classes	User of Service (SCU)	Provider of Service (SCP)
X-Ray Radiofluoroscopic Image Storage	Yes	Yes
Enhanced XRF Image Storage	Yes	Yes
X-Ray Angiographic Bi-Plane Image Storage (Retired)	Yes	Yes
Positron Emission Tomography Image Storage	Yes	Yes
Standalone PET Curve Storage (Retired)	Yes	Yes
Breast Tomosynthesis Image Storage	Yes	Yes
CT Image Storage	Yes	Yes
Enhanced CT Image Storage	Yes	Yes
Nuclear Medicine Image Storage	Yes	Yes
Ultrasound Multi-frame Image Storage (Retired)	Yes	Yes
Ultrasound Multi-frame Image Storage	Yes	Yes
MR Image Storage	Yes	Yes
Enhanced MR Image Storage	Yes	Yes
MR Spectroscopy Storage	Yes	Yes
RT Image Storage	Yes	Yes
RT Dose Storage	Yes	Yes
RT Structure Set Storage	Yes	Yes
RT Beams Treatment Record Storage	Yes	Yes
RT Plan Storage	Yes	Yes
RT Brachy Treatment Record Storage	Yes	Yes
RT Treatment Summary Record Storage	Yes	Yes
Nuclear Medicine Image Storage (Retired)	Yes	Yes
Ultrasound Image Storage (Retired)	Yes	Yes
Ultrasound Image Storage	Yes	Yes
Raw Data Storage	Yes	Yes
Spatial Registration Storage	Yes	Yes
Spatial Fiducials Storage	Yes	Yes
Real World Value Mapping Storage	Yes	Yes
Secondary Capture Image Storage	Yes	Yes
Multi-frame Single Bit Secondary Capture Image Storage	Yes	Yes
Multi-frame Grayscale Byte Secondary Capture Image Storage	Yes	Yes
Multi-frame Grayscale Word Secondary Capture Image Storage	Yes	Yes
Multi-frame True Color Secondary Capture Image Storage	Yes	Yes
VL Endoscopic Image Storage	Yes	Yes

SOP Classes	User of Service (SCU)	Provider of Service (SCP)
Video Endoscopic Image Storage	Yes	Yes
VL Microscopic Image Storage	Yes	Yes
Video Microscopic Image Storage	Yes	Yes
VL Slide-Coordinates Microscopic Image Storage	Yes	Yes
VL Photographic Image Storage	Yes	Yes
Video Photographic Image Storage	Yes	Yes
Ophthalmic Photography 8 Bit Image Storage	Yes	Yes
Ophthalmic Photography 16 Bit Image Storage	Yes	Yes
Stereometric Relationship Storage	Yes	Yes
Standalone Overlay Storage (Retired)	Yes	Yes
Basic Text SR Storage	Yes	Yes
Enhanced SR Storage	Yes	Yes
Comprehensive SR Storage	Yes	Yes
Procedure Log Storage	Yes	Yes
Mammography CAD SR Storage	Yes	Yes
Key Object Selection Document Storage	Yes	Yes
Chest CAD SR Storage	Yes	Yes
X-Ray Radiation Dose SR Storage	Yes	Yes
Standalone Curve Storage (Retired)	Yes	Yes
12-lead ECG Waveform Storage	Yes	Yes
General ECG Waveform Storage	Yes	Yes
Ambulatory ECG Waveform Storage	Yes	Yes
Hemodynamic Waveform Storage	Yes	Yes
Cardiac Electrophysiology Waveform Storage	Yes	Yes
Basic Voice Audio Waveform Storage	Yes	Yes
Hanging Protocol Storage	Yes	Yes
CSA Non-Image Storage *(widely used private SOP class)*	Yes	Yes
MR Spectrum Storage *(widely used private SOP class)*	Yes	Yes
MR Series Data Storag *(widely used private SOP class)*	Yes	Yes
MR Examcard Storage *(widely used private SOP class)*	Yes	Yes

1.1.2. Query/Retrieve

Table 1.2. Network services

SOP Classes	User of Service (SCU)	Provider of Service (SCP)
Patient Root Query/Retrieve Information Model – FIND	No	Yes
Patient Root Query/Retrieve Information Model – MOVE	No	Yes
Study Root Query/Retrieve Information Model – FIND	Yes	Yes
Study Root Query/Retrieve Information Model – MOVE	Yes	Yes

1.1.3. Workflow Management

Table 1.3. Network services

SOP Classes	User of Service (SCU)	Provider of Service (SCP)
Modality Worklist Information Model – FIND	No	Yes
Storage Commitment Push Model	No	Yes

1.1.4. Print Management

Table 1.4. Network services

SOP Classes	User of Service (SCU)	Provider of Service (SCP)
Not Applicable		

1.2. MEDIA SERVICES

APFS supports no media services.

Chapter 2. NETWORKING

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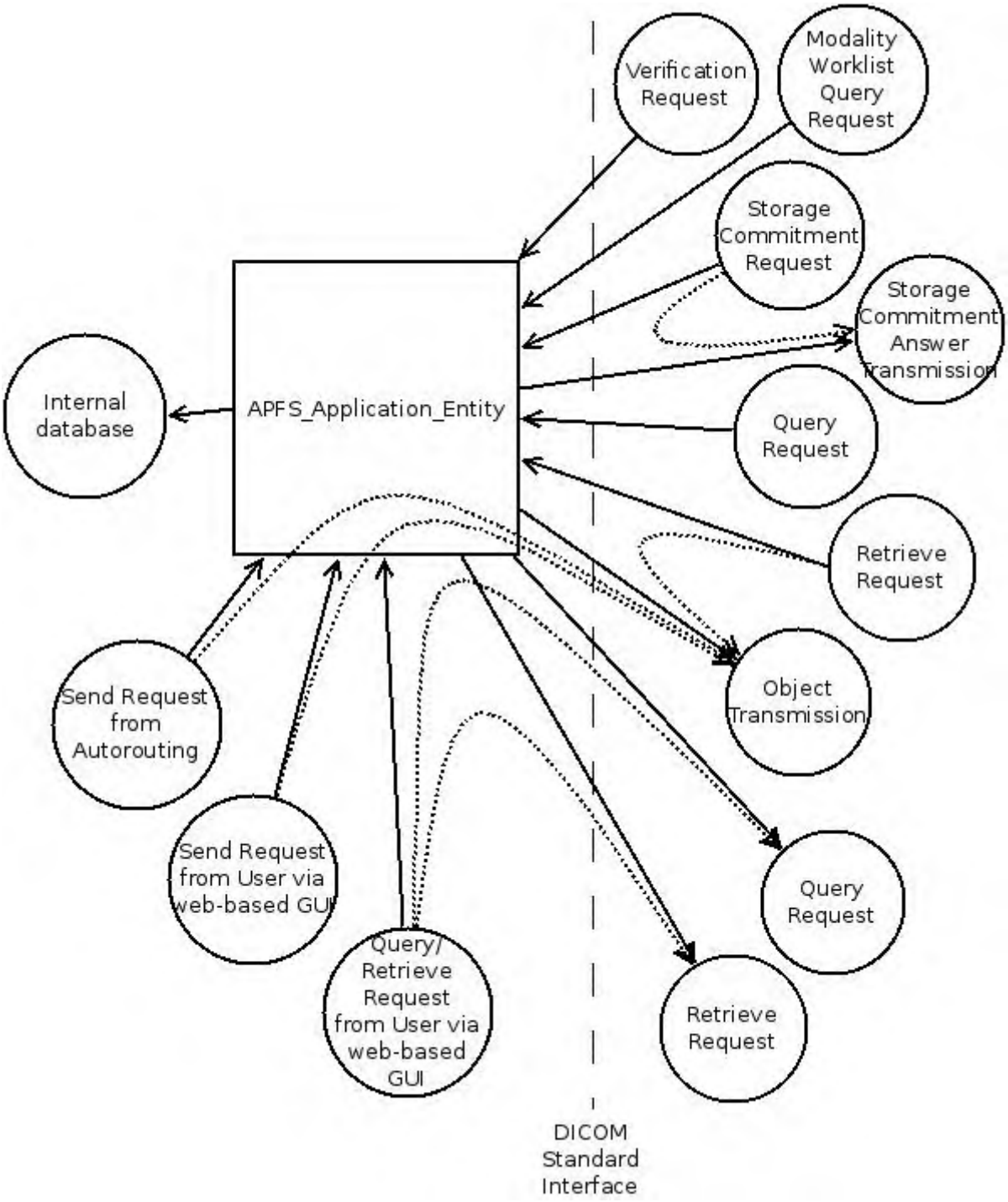
2.1. IMPLEMENTATION MODEL

2.1.1. Application Data Flow

Figure 2.1. Functional overview



APFS contains one Application Entity:

- *APFS_Application_Entity* which
    - stores medical images and provides query and retrieve services
    - provides modality worklist service based on HL7 messages received from a HIS/RIS system
    - provides storage commitment service based on stored medical images
    - an user of APFS' web-based GUI can invoke
        - object transmissions to other applications entities on a network

        - query requests to other applications entities on a network
        - retrieve requests to other applications entities on a network
    - transfers objects to other applications entities on a network when an internal configurable rules decide (so called *autorouting*)

2.1.2. Functional Definition of AEs

APFS contains a single application entity (APFS_Application_Entity depicted in the Application Data Flow diagram above). It implements:

- the Storage Service Classes
    - as a SCP to receive composite objects from remote application entities (source AEs). It stores them to an internal database.
    - as a SCU to send stored composite objects to remote application entities (destination AEs)
- the Query/Retrieve Service Classes
    - as a SCP it serves queries and retrieve requests from remote application entities

      This service is based on the internal database mentioned above. The relevant data originates from
        - composite objects received when acting as the Storage Service Classes SCP
        - patient information received via HL7 messages from a HIS/RIS system
    - as a SCU it can query and retrieve data from remote application entities
- the Workflow Management Service Classes
    - as a Modality Worklist SCP it answers queries from remote application entities (modalities)

      This service is based the internal database mentioned above. The only relevant data for this service class is:
        - patient information received via HL7 messages from a HIS/RIS system
    - as a Storage Commitment SCP it answers queries from remote application entities (modalities)

      This service is based the internal database mentioned above. The only relevant data for this service class is:
        - composite objects received when acting as the Storage Service Classes SCP
- the Verification Service Class

- as a SCP it confirms verification requests from remote application entities

2.1.3. Sequencing of Real-World Activities

APFS Application Entity initiates a transmission of composite objects to a remote application entity when:

- as a Query/Retrieve SCP receives a retrieve request from a remote application entity
- instructed by an user of the web-based graphical user interface to send data to a remote application entity[1]
- internal autorouting mechanism detects a plan to transfer a composite object to a remote application entity[2]

APFS Application Entity initiates a Query/Retrieve when:

- instructed by an user of the web-based graphical user interface to query/retrieve a remote application entity[3]

APFS Application Entity initiates a Storage Commitment answer transmission when:

- as a Storage Commitment SCP receives a Storage Commitment request from a remote application entity

2.2. AE SPECIFICATIONS

2.2.1. APFS_Application_Entity

2.2.1.1. SOP Classes

APFS_Application_Entity provides Standard Conformance to the following SOP Classes:

Table 2.1. Storage SOP Classes for APFS_Application_Entity

SOP Class Name	SOP Class UID	SCU	SCP
Computed Radiography Image Storage	1.2.840.10008.5.1.4.1.1.1	Yes	Yes
Basic Study Content Notification SOP Class (Retired)	1.2.840.10008.1.9	Yes	Yes
Stored Print Storage SOP Class (Retired)	1.2.840.10008.5.1.1.27	Yes	Yes
Hardcopy Grayscale Image Storage SOP Class (Retired)	1.2.840.10008.5.1.1.29	Yes	Yes
Hardcopy Color Image Storage SOP Class (Retired)	1.2.840.10008.5.1.1.30	Yes	Yes
Computed Radiography Image Storage	1.2.840.10008.5.1.4.1.1.1	Yes	Yes
Digital X-Ray Image Storage – For Presentation	1.2.840.10008.5.1.4.1.1.1.1	Yes	Yes

SOP Class Name	SOP Class UID	SCU	SCP
Digital X-Ray Image Storage – For Processing	1.2.840.10008.5.1.4.1.1.1.1.1	Yes	Yes
Digital Mammography X-Ray Image Storage – For Presentation	1.2.840.10008.5.1.4.1.1.1.2	Yes	Yes
Digital Mammography X-Ray Image Storage – For Processing	1.2.840.10008.5.1.4.1.1.1.2.1	Yes	Yes
Digital Intra-oral X-Ray Image Storage – For Presentation	1.2.840.10008.5.1.4.1.1.1.3	Yes	Yes
Digital Intra-oral X-Ray Image Storage – For Processing	1.2.840.10008.5.1.4.1.1.1.3.1	Yes	Yes
Standalone Modality LUT Storage (Retired)	1.2.840.10008.5.1.4.1.1.10	Yes	Yes
Encapsulated PDF Storage	1.2.840.10008.5.1.4.1.1.104.1	Yes	Yes
Standalone VOI LUT Storage	1.2.840.10008.5.1.4.1.1.11	Yes	Yes
Grayscale Softcopy Presentation State Storage SOP Class	1.2.840.10008.5.1.4.1.1.11.1	Yes	Yes
Color Softcopy Presentation State Storage SOP Class	1.2.840.10008.5.1.4.1.1.11.2	Yes	Yes
Pseudo-Color Softcopy Presentation State Storage SOP Class	1.2.840.10008.5.1.4.1.1.11.3	Yes	Yes
Blending Softcopy Presentation State Storage SOP Class	1.2.840.10008.5.1.4.1.1.11.4	Yes	Yes
X-Ray Angiographic Image Storage	1.2.840.10008.5.1.4.1.1.12.1	Yes	Yes
Enhanced XA Image Storage	1.2.840.10008.5.1.4.1.1.12.1.1	Yes	Yes
X-Ray Radiofluoroscopic Image Storage	1.2.840.10008.5.1.4.1.1.12.2	Yes	Yes
Enhanced XRF Image Storage	1.2.840.10008.5.1.4.1.1.12.2.1	Yes	Yes
X-Ray Angiographic Bi-Plane Image Storage (Retired)	1.2.840.10008.5.1.4.1.1.12.3	Yes	Yes
Positron Emission Tomography Image Storage	1.2.840.10008.5.1.4.1.1.128	Yes	Yes
Standalone PET Curve Storage (Retired)	1.2.840.10008.5.1.4.1.1.129	Yes	Yes
Breast Tomosynthesis Image Storage	1.2.840.10008.5.1.4.1.1.13.1.3	Yes	Yes
CT Image Storage	1.2.840.10008.5.1.4.1.1.2	Yes	Yes
Enhanced CT Image Storage	1.2.840.10008.5.1.4.1.1.2.1	Yes	Yes
Nuclear Medicine Image Storage	1.2.840.10008.5.1.4.1.1.20	Yes	Yes
Ultrasound Multi-frame Image Storage (Retired)	1.2.840.10008.5.1.4.1.1.3	Yes	Yes
Ultrasound Multi-frame Image Storage	1.2.840.10008.5.1.4.1.1.3.1	Yes	Yes
MR Image Storage	1.2.840.10008.5.1.4.1.1.4	Yes	Yes

SOP Class Name	SOP Class UID	SCU	SCP
Enhanced MR Image Storage	1.2.840.10008.5.1.4.1.1.4.1	Yes	Yes
MR Spectroscopy Storage	1.2.840.10008.5.1.4.1.1.4.2	Yes	Yes
RT Image Storage	1.2.840.10008.5.1.4.1.1.481.1	Yes	Yes
RT Dose Storage	1.2.840.10008.5.1.4.1.1.481.2	Yes	Yes
RT Structure Set Storage	1.2.840.10008.5.1.4.1.1.481.3	Yes	Yes
RT Beams Treatment Record Storage	1.2.840.10008.5.1.4.1.1.481.4	Yes	Yes
RT Plan Storage	1.2.840.10008.5.1.4.1.1.481.5	Yes	Yes
RT Brachy Treatment Record Storage	1.2.840.10008.5.1.4.1.1.481.6	Yes	Yes
RT Treatment Summary Record Storage	1.2.840.10008.5.1.4.1.1.481.7	Yes	Yes
RT Ion Plan Storage	1.2.840.10008.5.1.4.1.1.481.8	Yes	Yes
Nuclear Medicine Image Storage (Retired)	1.2.840.10008.5.1.4.1.1.5	Yes	Yes
Ultrasound Image Storage (Retired)	1.2.840.10008.5.1.4.1.1.6	Yes	Yes
Ultrasound Image Storage	1.2.840.10008.5.1.4.1.1.6.1	Yes	Yes
Raw Data Storage	1.2.840.10008.5.1.4.1.1.66	Yes	Yes
Spatial Registration Storage	1.2.840.10008.5.1.4.1.1.66.1	Yes	Yes
Spatial Fiducials Storage	1.2.840.10008.5.1.4.1.1.66.2	Yes	Yes
SegmentationStorage	1.2.840.10008.5.1.4.1.1.66.4	Yes	Yes
Real World Value Mapping Storage	1.2.840.10008.5.1.4.1.1.67	Yes	Yes
Secondary Capture Image Storage	1.2.840.10008.5.1.4.1.1.7	Yes	Yes
Multi-frame Single Bit Secondary Capture Image Storage	1.2.840.10008.5.1.4.1.1.7.1	Yes	Yes
Multi-frame Grayscale Byte Secondary Capture Image Storage	1.2.840.10008.5.1.4.1.1.7.2	Yes	Yes
Multi-frame Grayscale Word Secondary Capture Image Storage	1.2.840.10008.5.1.4.1.1.7.3	Yes	Yes
Multi-frame True Color Secondary Capture Image Storage	1.2.840.10008.5.1.4.1.1.7.4	Yes	Yes
VL Endoscopic Image Storage	1.2.840.10008.5.1.4.1.1.77.1.1	Yes	Yes
Video Endoscopic Image Storage	1.2.840.10008.5.1.4.1.1.77.1.1.1	Yes	Yes
VL Microscopic Image Storage	1.2.840.10008.5.1.4.1.1.77.1.2	Yes	Yes
Video Microscopic Image Storage	1.2.840.10008.5.1.4.1.1.77.1.2.1	Yes	Yes
VL Slide-Coordinates Microscopic Image Storage	1.2.840.10008.5.1.4.1.1.77.1.3	Yes	Yes
VL Photographic Image Storage	1.2.840.10008.5.1.4.1.1.77.1.4	Yes	Yes
Video Photographic Image Storage	1.2.840.10008.5.1.4.1.1.77.1.4.1	Yes	Yes
Ophthalmic Photography 8 Bit Image Storage	1.2.840.10008.5.1.4.1.1.77.1.5.1	Yes	Yes

SOP Class Name	SOP Class UID	SCU	SCP
Ophthalmic Photography 16 Bit Image Storage	1.2.840.10008.5.1.4.1.1.77.1.5.2	Yes	Yes
Stereometric Relationship Storage	1.2.840.10008.5.1.4.1.1.77.1.5.3	Yes	Yes
Standalone Overlay Storage (Retired)	1.2.840.10008.5.1.4.1.1.8	Yes	Yes
Basic Text SR Storage	1.2.840.10008.5.1.4.1.1.88.11	Yes	Yes
Enhanced SR Storage	1.2.840.10008.5.1.4.1.1.88.22	Yes	Yes
Comprehensive SR Storage	1.2.840.10008.5.1.4.1.1.88.33	Yes	Yes
Procedure Log Storage	1.2.840.10008.5.1.4.1.1.88.40	Yes	Yes
Mammography CAD SR Storage	1.2.840.10008.5.1.4.1.1.88.50	Yes	Yes
Key Object Selection Document Storage	1.2.840.10008.5.1.4.1.1.88.59	Yes	Yes
Chest CAD SR Storage	1.2.840.10008.5.1.4.1.1.88.65	Yes	Yes
X-Ray Radiation Dose SR Storage	1.2.840.10008.5.1.4.1.1.88.67	Yes	Yes
Standalone Curve Storage (Retired)	1.2.840.10008.5.1.4.1.1.9	Yes	Yes
12-lead ECG Waveform Storage	1.2.840.10008.5.1.4.1.1.9.1.1	Yes	Yes
General ECG Waveform Storage	1.2.840.10008.5.1.4.1.1.9.1.2	Yes	Yes
Ambulatory ECG Waveform Storage	1.2.840.10008.5.1.4.1.1.9.1.3	Yes	Yes
Hemodynamic Waveform Storage	1.2.840.10008.5.1.4.1.1.9.2.1	Yes	Yes
Cardiac Electrophysiology Waveform Storage	1.2.840.10008.5.1.4.1.1.9.3.1	Yes	Yes
Basic Voice Audio Waveform Storage	1.2.840.10008.5.1.4.1.1.9.4.1	Yes	Yes
Hanging Protocol Storage	1.2.840.10008.5.1.4.38.1	Yes	Yes
CSA Non-Image Storage *(widely used private SOP class)*	1.3.12.2.1107.5.9.1	Yes	Yes
MR Spectrum Storage *(widely used private SOP class)*	1.3.46.670589.11.0.0.12.1	Yes	Yes
MR Series Data Storage *(widely used private SOP class)*	1.3.46.670589.11.0.0.12.2	Yes	Yes
MR Examcard Storage *(widely used private SOP class)*	1.3.46.670589.11.0.0.12.4	Yes	Yes

Table 2.2. Query/Retrieve SOP Classes for APFS_Application_Entity

SOP Class Name	SOP Class UID	SCU	SCP
Patient Root Query/Retrieve Information Model – FIND	1.2.840.10008.5.1.4.1.2.1.1	No	Yes
Patient Root Query/Retrieve Information Model – MOVE	1.2.840.10008.5.1.4.1.2.1.2	No	Yes
Study Root Query/Retrieve Information Model – FIND	1.2.840.10008.5.1.4.1.2.2.1	Yes	Yes

SOP Class Name	SOP Class UID	SCU	SCP
Study Root Query/Retrieve Information Model – MOVE	1.2.840.10008.5.1.4.1.2.2.2	Yes	Yes

Table 2.3. Workflow management SOP Classes for APFS_Application_Entity

SOP Class Name	SOP Class UID	SCU	SCP
Modality Worklist Information Model – FIND	1.2.840.10008.5.1.4.31	No	Yes
Storage Commitment Push Model	1.2.840.10008.1.20.1	No	Yes

Table 2.4. Verification SOP Classes for APFS_Application_Entity

SOP Class Name	SOP Class UID	SCU	SCP
Verification	1.2.840.10008.1.1	Yes	Yes

2.2.1.2. Association Policies

2.2.1.2.1. General

The DICOM standard application context name for DICOM 3.0 is always proposed:

Table 2.5. DICOM Application Context for APFS_Application_Entity

Application Context Name	1.2.840.10008.3.1.1.1

SOP Class extended negotiation is not supported.

Max PDU sizes offered and accepted are 16384.

2.2.1.2.2. Number of Associations

The number of simultaneous associations that will be accepted as a SCP and/or initiated as a SCU is not limited in principle.

APFS_Application_Entity spawns a new thread:

- (as a SCP) for each connection request from a source AE it receives
- (as a SCU) for each destination AE it has to send composite instances or storage commitment answers to

Therefore, APFS_Application_Entity can have multiple simultaneous connections, and there are no inherent limitations on the number of simultaneous associations that it can maintain.

Actually, there are practical limits of simultaneous associations determined by the underlying software environment, the operating system and the hardware itself.

2.2.1.2.3. Asynchronous Nature

Asynchronous communication is not supported.

2.2.1.2.4. Implementation Identifying Information

The implementation information for APFS_Application_Entity is:

Table 2.6. DICOM Implementation Class and Version for APFS_Application_Entity

Implementation Class UID	1.3.6.1.4.1.20744.3.1.2.2.9001
Implementation Version Name	APFS-X.YY.ZZ-REL

where *X.YY.ZZ* is an release number of APFS (e.g. 2.10.12).

2.2.1.3. Association Initiation Policy

APFS_Application_Entity initiates:

- an association aimed to send composite instances when:
    - it needs to store composite instances as a sub-operation of a retrieve request from a remote application entity
    - an user of the web-based GUI instructs APFS to send data to a remote application entity
    - the internal autorouting mechanism detects a plan to transfer a composite object to a remote application entity

  All events listed above trigger the same sequence of actions and the mechanism of an association initiation is the same. Therefore, all three activities ("Retrieve request", "User instruction", "Autorouting instruction") will be described together with differences explicitly noted.
- an association aimed to query/retrieve when:
    - an user of the web-based GUI instructs APFS to query/retrieve to a remote application entity
- an association aimed to send storage commitment answers when:
    - it receives a storage commitment request

2.2.1.3.1. Real-world activities - Retrieve request or User instruction or Autorouting instruction

2.2.1.3.1.1. Description and Sequencing of Activities

When requested by any of these:

- by a remote application entity with a C-MOVE (Retrieve request)
- by user's action in the web-based GUI
- by the internal autorouting mechanism

APFS:

1. builds a list of UIDs of composite objects to send

2. collects SOP Classes of those composite objects
3. initiates an association to a destination application entity
4. sends the selected composite objects to the destination using C-STORE
5. if triggered by a C-MOVE request: for each C-STORE performed APFS_Application_Entity notifies C-MOVE requester about C-STORE status
6. closes the association

2.2.1.3.1.2. Proposed Presentation Contexts

Table 2.7. Proposed Presentation Contexts by APFS_Application_Entity

Abstract Syntax Name	Abstract Syntax UID	Transfer Syntax Name	Transfer Syntax UID	Role	Extended Negotiation
See note 1 below	See note 1 below	Implicit VR Little Endian	1.2.840.10008.1.2	SCU	None
See note 1 below	See note 1 below	Explicit VR Little Endian	1.2.840.10008.1.2.1	SCU	None
See note 1 below	See note 1 below	Explicit VR Big Endian	1.2.840.10008.1.2.2	SCU	None
See note 1 below	See note 1 below	Deflated Explicit VR Little Endian	1.2.840.10008.1.2.1.99	SCU	None
See note 1 below	See note 1 below	RLE Lossless	1.2.840.10008.1.2.5	SCU	None
See note 1 below	See note 1 below	JPEG Baseline (Process 1)	1.2.840.10008.1.2.4.50	SCU	None
See note 1 below	See note 1 below	JPEG Extended (Process 2 & 4)	1.2.840.10008.1.2.4.51	SCU	None
See note 1 below	See note 1 below	JPEG Lossless, Non-Hierarchical (Process 14)	1.2.840.10008.1.2.4.57	SCU	None
See note 1 below	See note 1 below	JPEG Lossless, Non-Hierarchical, First-Order Prediction (Process 14 [Selection Value 1])	1.2.840.10008.1.2.4.70	SCU	None
See note 1 below	See note 1 below	JPEG-LS Lossless Image Compression	1.2.840.10008.1.2.4.80	SCU	None
See note 1 below	See note 1 below	JPEG-LS Lossy (Near-Lossless) Image Compression	1.2.840.10008.1.2.4.81	SCU	None
See note 1 below	See note 1 below	JPEG 2000 Image Compression (Lossless Only)	1.2.840.10008.1.2.4.90	SCU	None

Abstract Syntax Name	Abstract Syntax UID	Transfer Syntax Name	Transfer Syntax UID	Role	Extended Negotiation
See note 1 below	See note 1 below	JPEG 2000 Image Compression	1.2.840.10008.1.2.4.91	SCU	None
See note 1 below	See note 1 below	MPEG2 Main Profile @ Main Level	1.2.840.10008.1.2.4.100	SCU	None
See note 1 below	See note 1 below	MPEG2 Main Profile @ High Level	1.2.840.10008.1.2.4.101	SCU	None
See note 1 below	See note 1 below	MPEG-4 AVC/H.264 High Profile / Level 4.1	1.2.840.10008.1.2.4.102	SCU	None
See note 1 below	See note 1 below	MPEG-4 AVC/H.264 BD-compatible High Profile / Level 4.1	1.2.840.10008.1.2.4.103	SCU	None

Note

1. The Abstract Syntax Name and UID correspond to one of the SOP Class Names and UIDs supported (see Table Storage SOP Classes for APFS_Application_Entity above).

APFS_Application_Entity proposes a set of presentation contexts, one or two presentation contexts for each SOP class. The first presentation context contains:

- the SOP Class UID as the proposed Abstract Syntax
- the Transfer Syntax 1.2.840.10008.1.2 (Implicit VR Little Endian) as the proposed Transfer Syntax

The second presentation context, if present, contains:

- the SOP Class UID as the proposed Abstract Syntax
- one of the transfer syntaxes from the table above, except 1.2.840.10008.1.2 (Implicit VR Little Endian), as the proposed Transfer Syntaxes

The set of the proposed Abstract Syntaxes (SOP Class UIDs) is a subset of SOP Classes supported. It is the minimal subset needed to transfer all composite objects selected to be sent.

2.2.1.3.1.3. SOP Specific Conformance for SOP Classes

After a successful C-STORE response from the SCP (the destination application entity), APFS_Application_Entity will continue to send composite instances. Warnings in the C-STORE response from the SCP are ignored.

If an unsuccessful C-STORE response is received from the SCP, APFS_Application_Entity will log the failure and close the association.

In case of an exception (an association aborted by the SCP, a network timeout, a TCP/IP communication error) APFS_Application_Entity will abort the Association using DICOM A-ABORT.

APFS_Application_Entity modifies patient information in the composite instances being sent (in a C-STORE command) with the current information kept in the internal database. The SOP Instance UID stays unchanged. The attributes updated are listed in the following table:

Table 2.8. Attributes updated in instances being sent

Attribute Name	Tag	Attribute Description
Patient ID	(0010,0020)	Primary ID of the patient
Issuer of Patient ID	(0010,0021)	This attribute is either removed or set to the namespace of primary patients' IDs (as configured to APFS). The behaviour is configurable.
Patient's Birth Date	(0010,0030)	Birth date of the patient
Patient's Birth Time	(0010,0032)	Birth time of the patient
Patient's Sex	(0010,0040)	Sex of the patient
Other Patient IDs Sequence	(0010,1002)	Depending on the actual configuration, this attribute is either: • left intact or • removed or • replaced with current patient's identifiers from the repository or • supplemented with current patient's identifiers from the repository

2.2.1.3.2. Real-world activities - User instruction to query a remote application

2.2.1.3.2.1. Description and Sequencing of Activities

When requested by user's action in the web-based GUI, then APFS:

1. initiates an association to query a remote application entity
2. sends a C-FIND request
3. receives C-FIND response messages
4. closes the association

2.2.1.3.2.2. Proposed Presentation Contexts

Table 2.9. Proposed Presentation Contexts by APFS_Application_Entity

Abstract Syntax Name	Abstract Syntax UID	Transfer Syntax Name	Transfer Syntax UID	Role	Extended Negotiation
Study Root Query/Retrieve Information Model – FIND	1.2.840.10008.5.1.4.1.2.2.1	Implicit VR Little Endian	1.2.840.10008.1.2	SCU	None

APFS_Application_Entity proposes only one presentation context. The presentation context contains:

- the SOP Class UID 1.2.840.10008.5.1.4.1.2.2.1 (Study Root Query/Retrieve Information Model – FIND)
- the Transfer Syntax 1.2.840.10008.1.2 (Implicit VR Little Endian) as the proposed Transfer Syntax

2.2.1.3.2.3. SOP Specific Conformance for SOP Classes

APFS_Application_Entity always use the value "STUDY" for the Query/Retrieve Level (0008,0052).

APFS_Application_Entity supports the following Optional Keys:

Table 2.10. Supported Optional Keys in C-FIND

Description	Tag
Patient’s Birth Date	(0010,0030)
Patient’s Sex	(0010,0040)
Modalities in Study	(0008,0061)
Referring Physician’s Name	(0008,0090)
Study Description	(0008,1030)
Series Description	(0008,103E)
Number of Patient Related Studies	(0020,1200)
Number of Study Related Series	(0020,1206)
Number of Study Related Instances	(0020,1208)
Performed Station AETitle	(0040,0241)

Depending on query parameters given by the user, APFS_Application_Entity

- either does not use Specific Character Set (0008,0005) at all
- or sets Specific Character Set (0008,0005) to ISO_IR 192

(In details: When the parameters contains only ASCII characters then Specific Character Set (0008,0005) is not use. Otherwise, APFS_Application_Entity submits two C-FIND queries:

- one query with Specific Character Set (0008,0005) to ISO_IR 192 and with the parameters as specified by the user

- one query without Specific Character Set (0008,0005) and with "asciified" parameters

)

2.2.1.3.3. Real-world activities - User instruction to retrieve from a remote application

2.2.1.3.3.1. Description and Sequencing of Activities

When requested by user's action in the web-based GUI, then APFS:

1. initiates an association to retrieve from a remote application entity
2. sends a C-MOVE request
3. receives C-MOVE response messages
4. closes the association

2.2.1.3.3.2. Proposed Presentation Contexts

Table 2.11. Proposed Presentation Contexts by APFS_Application_Entity

Abstract Syntax Name	Abstract Syntax UID	Transfer Syntax Name	Transfer Syntax UID	Role	Extended Negotiation
Study Root Query/Retrieve Information Model – MOVE	1.2.840.10008.5.1.4.1.2.2.2	Implicit VR Little Endian	1.2.840.10008.1.2	SCU	None

For a retrieve request, APFS_Application_Entity proposes only one presentation context. The presentation context contains:

- the SOP Class UID 1.2.840.10008.5.1.4.1.2.2.1 (Study Root Query/Retrieve Information Model – MOVE)
- the Transfer Syntax 1.2.840.10008.1.2 (Implicit VR Little Endian) as the proposed Transfer Syntax

2.2.1.3.3.3. SOP Specific Conformance for SOP Classes

APFS_Application_Entity provides standard conformance.

2.2.1.3.4. Real-world activities - Storage Commitment request

2.2.1.3.4.1. Description and Sequencing of Activities

When requested by a remote application entity with a Storage Commitment N-ACTION request, APFS:

1. builds a list of UIDs of composite objects and their SOP classes to announce a commitment or failure
2. initiates an association to the requesting application entity

3. sends the storage commitment answer (using a N-EVENT-REPORT request) to the requesting application entity

4. closes the association

2.2.1.3.4.2. Proposed Presentation Contexts

Table 2.12. Proposed Presentation Contexts by APFS_Application_Entity

Abstract Syntax Name	Abstract Syntax UID	Transfer Syntax Name	Transfer Syntax UID	Role	Extended Negotiation
Storage Commitment Push Model	1.2.840.10008.1.20.1	Implicit VR Little Endian	1.2.840.10008.1.2	SCP	None

2.2.1.3.4.3. SOP Specific Conformance for SOP Classes

APFS_Application_Entity provides standard conformance to the DICOM Storage Commitment Push Model Service Class as SCP.

SCP Notifications Statement:

- APFS does not support the optional Storage Media File-Set ID & UID Attributes in the N-EVENT-REPORT.
- APFS does not use the optional Retrieve AE Title (0008,0054) Attribute in the NEVENT- REPORT.

2.2.1.4. Association Acceptance Policy

APFS_Application_Entity accepts associations from registered application entities. This registration is performed by an administrator using a web-based GUI.

Associations are accepted for these purposes:

- to allow remote application entities to verify communication
- to allow remote application entities to store composite instances to the internal database
- to allow remote application entities to query composite instances the internal database
- to allow remote application entities to retrieve composite instances from the internal database
- to allow remote application entities to obtain modality worklist from the internal database
- to allow remote application entities to request storage commitment

2.2.1.4.1. Real-world activity - Verification request

2.2.1.4.1.1. Description and Sequencing of Activities

APFS_Application_Entity accepts an association from a remote application entity to verify communication using C-ECHO.

2.2.1.4.1.2. Accepted Presentation Contexts

Table 2.13. Acceptable Presentation Contexts for APFS_Application_Entity

Abstract Syntax Name	Abstract Syntax UID	Transfer Syntax Name	Transfer Syntax UID	Role	Extended Negotiation
Verification	1.2.840.10008.1.1	Implicit VR Little Endian	1.2.840.10008.1.2	SCP	None

2.2.1.4.1.3. SOP Specific Conformance

APFS_Application_Entity provides standard conformance.

2.2.1.4.1.4. Presentation Context Acceptance Criterion

APFS_Application_Entity accepts any Presentation Context for the supported SOP classes with the supported Transfer Syntaxes.

2.2.1.4.1.5. Transfer Syntax Selection Policies

APFS_Application_Entity supports only the Implicit VR Little Endian transfer syntax.

2.2.1.4.2. Real-world activity - Store request

2.2.1.4.2.1. Description and Sequencing of Activities

APFS_Application_Entity accepts an association from a source application entity to store composite instances using C-STORE.

2.2.1.4.2.2. Accepted Presentation Contexts

Table 2.14. Acceptable Presentation Contexts for APFS_Application_Entity

Abstract Syntax Name	Abstract Syntax UID	Transfer Syntax Name	Transfer Syntax UID	Role	Extended Negotiation
See note 1 below	See note 1 below	Implicit VR Little Endian	1.2.840.10008.1.2	SCP	None
See note 1 below	See note 1 below	Explicit VR Little Endian	1.2.840.10008.1.2.1	SCP	None
See note 1 below	See note 1 below	Explicit VR Big Endian	1.2.840.10008.1.2.2	SCP	None
See note 1 below	See note 1 below	Deflated Explicit VR Little Endian	1.2.840.10008.1.2.1.99	SCP	None
See note 1 below	See note 1 below	RLE Lossless	1.2.840.10008.1.2.5	SCP	None
See note 1 below	See note 1 below	JPEG Baseline (Process 1)	1.2.840.10008.1.2.4.50	SCP	None
See note 1 below	See note 1 below	JPEG Extended (Process 2 & 4)	1.2.840.10008.1.2.4.51	SCP	None
See note 1 below	See note 1 below	JPEG Lossless, Non-Hierarchical (Process 14)	1.2.840.10008.1.2.4.57	SCP	None

Abstract Syntax Name	Abstract Syntax UID	Transfer Syntax Name	Transfer Syntax UID	Role	Extended Negotiation
See note 1 below	See note 1 below	JPEG Lossless, Non-Hierarchical, First-Order Prediction (Process 14 [Selection Value 1])	1.2.840.10008.1.2.4.70	SCP	None
See note 1 below	See note 1 below	JPEG-LS Lossless Image Compression	1.2.840.10008.1.2.4.80	SCP	None
See note 1 below	See note 1 below	JPEG-LS Lossy (Near-Lossless) Image Compression	1.2.840.10008.1.2.4.81	SCP	None
See note 1 below	See note 1 below	JPEG 2000 Image Compression (Lossless Only)	1.2.840.10008.1.2.4.90	SCP	None
See note 1 below	See note 1 below	JPEG 2000 Image Compression	1.2.840.10008.1.2.4.91	SCP	None
See note 1 below	See note 1 below	MPEG2 Main Profile @ Main Level	1.2.840.10008.1.2.4.100	SCP	None
See note 1 below	See note 1 below	MPEG2 Main Profile @ High Level	1.2.840.10008.1.2.4.101	SCP	None
See note 1 below	See note 1 below	MPEG-4 AVC/H.264 High Profile / Level 4.1	1.2.840.10008.1.2.4.102	SCP	None
See note 1 below	See note 1 below	MPEG-4 AVC/H.264 BD-compatible High Profile / Level 4.1	1.2.840.10008.1.2.4.103	SCP	None

Note

1. The Abstract Syntax Name and UID correspond to one of the SOP Class Names and UIDs supported (see Table Storage SOP Classes for APFS_Application_Entity above).

APFS_Application_Entity may be configured to accept only a subset of all SOP Classes listed above. Moreover, for each acceptable SOP Class, it can be configured to accept only a subset of transfer syntaxes listed above.

If offered a choice of Transfer Syntaxes in the accepted Presentation Contexts, APFS_Application_Entity will select the first one supported from the list of proposed Transfer Syntaxes.

2.2.1.4.2.3. SOP Specific Conformance

APFS_Application_Entity provides Level 2 (Full) conformance to the Storage SOP Classes.

APFS_Application_Entity

- does not discard or change any elements
- does not validate that the Attributes of the SOP Instance meet the requirements of the IOD

The following table summarizes storage status codes returned to the source application entity:

Table 2.15. APFS_Application_Entity C-STORE Response Status

Service Status	Further Meaning	Error Code	Reason
Success	Success	0000	The instance has been stored to the internal database
Refused	Out of Resources	A700	IO error while receiving the object
Refused	Out of Resources	A701	Error while saving the object
Refused	Out of Resources	A702	Error in a requested preprocessing plugin
Refused	Out of Resources	A703	Error in a requested postprocessing plugin
Refused	Out of Resources	A704	Error in a management repository
Refused	Out of Resources	A705	Unknown peer
Refused	Out of Resources	A706	Peer not authorized to store
Refused	Out of Resources	A900	Data Set does not match SOP Class
Error	Cannot understand	C000	Failed to decode the object
Error	Cannot understand	C001	Aborted while receiving the object
Error	Cannot understand	C002	An identifier mismatches an existing record
Error	Cannot understand	C003	Object is not valid
Error	Cannot understand	C004	Object's SOP Instance UID mismatches Affected SOP Instance UID in the C-STORE request

When applicable, the optional attribute (0000,0902) Error Comment is used to supplement information about unsuccessful C-STORE operation.

In case of an exception (a network timeout, a TCP/IP communication error) APFS_Application_Entity will abort the Association using DICOM A-ABORT.

2.2.1.4.2.4. Presentation Context Acceptance Criterion

APFS_Application_Entity accepts any Presentation Context for the supported SOP classes with the supported Transfer Syntaxes.

2.2.1.4.2.5. Transfer Syntax Selection Policies

APFS_Application_Entity accepts the first supported transfer syntax.

2.2.1.4.3. Real-world activity - Query request

2.2.1.4.3.1. Description and Sequencing of Activities

APFS_Application_Entity accepts an association from a source application entity to query internal database about stored SOP instances using C-FIND.

2.2.1.4.3.2. Accepted Presentation Contexts

Table 2.16. Acceptable Presentation Contexts for APFS_Application_Entity

Abstract Syntax Name	Abstract Syntax UID	Transfer Syntax Name	Transfer Syntax UID	Role	Extended Negotiation
Patient Root Query/Retrieve Information Model – FIND	1.2.840.10008.5.1.4.1.2.1.1	Implicit VR Little Endian	1.2.840.10008.1.2	SCP	None
Patient Root Query/Retrieve Information Model – FIND	1.2.840.10008.5.1.4.1.2.1.1	Explicit VR Little Endian	1.2.840.10008.1.2.1	SCP	None
Patient Root Query/Retrieve Information Model – FIND	1.2.840.10008.5.1.4.1.2.1.1	Explicit VR Big Endian	1.2.840.10008.1.2.2	SCP	None
Study Root Query/Retrieve Information Model – FIND	1.2.840.10008.5.1.4.1.2.2.1	Implicit VR Little Endian	1.2.840.10008.1.2	SCP	None
Study Root Query/Retrieve Information Model – FIND	1.2.840.10008.5.1.4.1.2.2.1	Explicit VR Little Endian	1.2.840.10008.1.2.1	SCP	None
Study Root Query/Retrieve Information Model – FIND	1.2.840.10008.5.1.4.1.2.2.1	Explicit VR Big Endian	1.2.840.10008.1.2.2	SCP	None

APFS_Application_Entity may be configured to accept only a subset of all SOP Classes listed above. Moreover, for each acceptable SOP Class, it can be configured to accept only a subset of transfer syntaxes listed above.

If offered a choice of Transfer Syntaxes in the accepted Presentation Contexts, APFS_Application_Entity will select the first one supported from the list of proposed Transfer Syntaxes.

2.2.1.4.3.3. SOP Specific Conformance

APFS_Application_Entity does not support relational queries.

APFS_Application_Entity returns also the attribute (0008,0054) "Retrieve AE Title" set to its own AE Title.

Case sensitivity/insensitivity and diacritics sensitivity/insensitivity in matching are configurable.

APFS_Application_Entity can be configured to limit the number of matching instances. If the query being processed exceeds the limit number then the services status returned will be response will be Refused: Out of Resources (Error Code A700).

The following table lists the supported matching and returned keys:

Table 2.17. Keys supported for Patient Root Information Model

Level	Attribute name	Tag	Matching	Returned
PATIENT	Patient's Name	(0010,0010)	X	X
PATIENT	Patient ID	(0010,0020)	X	X
PATIENT	Patient's Birth Date	(0010,0030)	X	X
PATIENT	Patient's Birth Time	(0010,0032)	X	X
PATIENT	Patient's Sex	(0010,0040)	X	X
PATIENT	Number of Patient Related Studies	(0020,1200)		X
STUDY	Study Date	(0008,0020)	X	X
STUDY	Study Time	(0008,0030)	X	X
STUDY	Accession Number	(0008,0050)	X	X
STUDY	Modalities in Study	(0008,0061)	X	X
STUDY	Referring Physician's Name	(0008,0090)	X	X
STUDY	Study Description	(0008,1030)	X	X
STUDY	Study Instance UID	(0020,000D)	X	X
STUDY	Study ID	(0020,0010)	X	X
STUDY	Number of Study Related Series	(0020,1206)		X
STUDY	Number of Study Related Instances	(0020,1208)		X
SERIES	Series Date	(0008,0021)		X
SERIES	Series Time	(0008,0031)		X
SERIES	Modality	(0008,0060)	X	X
SERIES	Series Description	(0008,103E)		X
SERIES	Body Part Examined	(0018,0015)		X
SERIES	Performing Physician's Name	(0008,1050)		X
SERIES	Patient Position	(0018,5100)		X
SERIES	Series Instance UID	(0020,000E)	X	X
SERIES	Series Number	(0020,0011)	X	X
SERIES	Number of Series Related Instances	(0020,1209)		X
SERIES	Performed Station AETitle	(0040,0241)		X
IMAGE	Image Type	(0008,0008)		X
IMAGE	SOP Class UID	(0008,0016)	X	X
IMAGE	SOP Instance UID	(0008,0018)	X	X

Level	Attribute name	Tag	Matching	Returned
IMAGE	Instance Number	(0020,0013)	X	X

Table 2.18. Keys supported for Study Root Information Model

Level	Attribute name	Tag	Matching	Returned
STUDY	Study Date	(0008,0020)	X	X
STUDY	Study Time	(0008,0030)	X	X
STUDY	Accession Number	(0008,0050)	X	X
STUDY	Modalities in Study	(0008,0061)	X	X
STUDY	Referring Physician's Name	(0008,0090)	X	X
STUDY	Study Description	(0008,1030)	X	X
STUDY	Patient's Name	(0010,0010)	X	X
STUDY	Patient ID	(0010,0020)	X	X
STUDY	Patient's Birth Date	(0010,0030)	X	X
STUDY	Patient's Birth Time	(0010,0032)	X	X
STUDY	Patient's Sex	(0010,0040)	X	X
STUDY	Study Instance UID	(0020,000D)	X	X
STUDY	Study ID	(0020,0010)	X	X
STUDY	Number of Study Related Series	(0020,1206)		X
STUDY	Number of Study Related Instances	(0020,1208)		X
SERIES	Series Date	(0008,0021)		X
SERIES	Series Time	(0008,0031)		X
SERIES	Modality	(0008,0060)	X	X
SERIES	Series Description	(0008,103E)		X
SERIES	Body Part Examined	(0018,0015)		X
SERIES	Performing Physician's Name	(0008,1050)		X
SERIES	Patient Position	(0018,5100)		X
SERIES	Series Instance UID	(0020,000E)	X	X
SERIES	Series Number	(0020,0011)	X	X
SERIES	Number of Series Related Instances	(0020,1209)		X
SERIES	Performed Station AETitle	(0040,0241)		X
IMAGE	Image Type	(0008,0008)		X
IMAGE	SOP Class UID	(0008,0016)	X	X
IMAGE	SOP Instance UID	(0008,0018)	X	X
IMAGE	Instance Number	(0020,0013)	X	X

The following table summarizes status codes returned to the querying application entity:

Table 2.19. APFS_Application_Entity C-FIND Response Status

Service Status	Further Meaning	Error Code	Reason
Success	Success	0000	Matching is complete. No final Identifier is supplied.
Refused	Out of Resources	A700	Out of Resources
Failed	Identifier does not match SOP Class	A900	Identifier does not match SOP Class
Failed	Unable to process	C001	Peer not authorized to operation
Cancel	Matching terminated due to Cancel request	FE00	C-FIND SCU sent a Cancel Request
Pending	Matches are continuing - Current Match is supplied and any Optional Keys were supported	FF00	All Optional Keys were supported in the same manner as Required Keys
Pending	Matches are continuing - Warning that one or more Optional Keys were not supported	FF01	One or more Optional Keys were not supported for existence and/or matching for this Identifier

When applicable, the optional attribute (0000,0902) Error Comment is used to supplement information about unsuccessful C-FIND operation.

In case of an exception (a network timeout, a TCP/IP communication error) APFS_Application_Entity will abort the Association using DICOM A-ABORT.

2.2.1.4.3.4. Presentation Context Acceptance Criterion

APFS_Application_Entity accepts any Presentation Context for the supported SOP classes with the supported Transfer Syntaxes.

2.2.1.4.3.5. Transfer Syntax Selection Policies

APFS_Application_Entity accepts the first supported transfer syntax.

2.2.1.4.4. Real-world activity - Retrieve request (C-MOVE)

2.2.1.4.4.1. Description and Sequencing of Activities

APFS_Application_Entity accepts an association from a source application entity to retrieve stored SOP instances using C-MOVE.

See Real-world activities - Retrieve request or User instruction above for C-STORE suboperations initiated.

2.2.1.4.4.2. Accepted Presentation Contexts

Table 2.20. Acceptable Presentation Contexts for APFS_Application_Entity

Abstract Syntax Name	Abstract Syntax UID	Transfer Syntax Name	Transfer Syntax UID	Role	Extended Negotiation
Patient Root Query/Retrieve Information Model – MOVE	1.2.840.10008.5.1.4.1.2.1.2	Implicit VR Little Endian	1.2.840.10008.1.2	SCP	None
Patient Root Query/Retrieve Information Model – MOVE	1.2.840.10008.5.1.4.1.2.1.2	Explicit VR Little Endian	1.2.840.10008.1.2.1	SCP	None
Patient Root Query/Retrieve Information Model – MOVE	1.2.840.10008.5.1.4.1.2.1.2	Explicit VR Big Endian	1.2.840.10008.1.2.2	SCP	None
Study Root Query/Retrieve Information Model – MOVE	1.2.840.10008.5.1.4.1.2.2.2	Implicit VR Little Endian	1.2.840.10008.1.2	SCP	None
Study Root Query/Retrieve Information Model – MOVE	1.2.840.10008.5.1.4.1.2.2.2	Explicit VR Little Endian	1.2.840.10008.1.2.1	SCP	None
Study Root Query/Retrieve Information Model – MOVE	1.2.840.10008.5.1.4.1.2.2.2	Explicit VR Big Endian	1.2.840.10008.1.2.2	SCP	None

APFS_Application_Entity may be configured to accept only a subset of all SOP Classes listed above. Moreover, for each acceptable SOP Class, it can be configured to accept only a subset of transfer syntaxes listed above.

If offered a choice of Transfer Syntaxes in the accepted Presentation Contexts, APFS_Application_Entity will select the first one supported from the list of proposed Transfer Syntaxes.

2.2.1.4.4.3. SOP Specific Conformance

APFS_Application_Entity does not support relational queries.

Case sensitivity/insensitivity and diacritics sensitivity/insensitivity in matching are configurable.

APFS_Application_Entity can be configured to limit the number of matching instances (the instances to be sent). If the request being processed exceeds the limit number then the

services status returned will be response will be Refused: Out of Resources – Unable to calculate number of matches (Error Code A701).

The following table lists the supported matching:

Table 2.21. Keys supported for Patient Root Information Model

Level	Attribute name	Tag
PATIENT	Patient's Name	(0010,0010)
PATIENT	Patient ID	(0010,0020)
PATIENT	Patient's Birth Date	(0010,0030)
PATIENT	Patient's Birth Time	(0010,0032)
PATIENT	Patient's Sex	(0010,0040)
STUDY	Study Date	(0008,0020)
STUDY	Study Time	(0008,0030)
STUDY	Accession Number	(0008,0050)
STUDY	Modalities in Study	(0008,0061)
STUDY	Referring Physician's Name	(0008,0090)
STUDY	Study Description	(0008,1030)
STUDY	Study Instance UID	(0020,000D)
STUDY	Study ID	(0020,0010)
SERIES	Modality	(0008,0060)
SERIES	Series Instance UID	(0020,000E)
SERIES	Series Description	(0008,103E)
SERIES	Series Number	(0020,0011)
SERIES	Performed Station AETitle	(0040,0241)
IMAGE	SOP Class UID	(0008,0016)
IMAGE	SOP Instance UID	(0008,0018)
IMAGE	Instance Number	(0020,0013)

Table 2.22. Keys supported for Study Root Information Model

Level	Attribute name	Tag
STUDY	Study Date	(0008,0020)
STUDY	Study Time	(0008,0030)
STUDY	Accession Number	(0008,0050)
STUDY	Modalities in Study	(0008,0061)
STUDY	Referring Physician's Name	(0008,0090)
STUDY	Study Description	(0008,1030)
STUDY	Patient's Name	(0010,0010)
STUDY	Patient ID	(0010,0020)
STUDY	Patient's Birth Date	(0010,0030)
STUDY	Patient's Birth Time	(0010,0032)

Level	Attribute name	Tag
STUDY	Patient's Sex	(0010,0040)
STUDY	Study Instance UID	(0020,000D)
STUDY	Study ID	(0020,0010)
SERIES	Modality	(0008,0060)
SERIES	Series Instance UID	(0020,000E)
SERIES	Series Description	(0008,103E)
SERIES	Series Number	(0020,0011)
SERIES	Performed Station AETitle	(0040,0241)
IMAGE	SOP Class UID	(0008,0016)
IMAGE	SOP Instance UID	(0008,0018)
IMAGE	Instance Number	(0020,0013)

The following table summarizes status codes returned to the querying application entity:

Table 2.23. APFS_Application_Entity C-MOVE Response Status

Service Status	Further Meaning	Error Code	Reason
Success	Sub-operations Complete - No Failures	0000	All matching SOP instances have been successfully sent to the destination application entity.
Warning	Sub-operations Complete - One or more Failures	B000	At least one of C-STORE suboperations finished with a failure or warning status.
Refused	Out of Resources – Unable to calculate number of matches	A701	Unable to calculate number of matches
Refused	Out of Resources – Unable to perform sub-operations	A702	Unable to perform sub-operations
Refused	Move Destination unknown	A801	Refused: Move Destination unknown
Failed	Identifier does not match SOP Class	A900	Identifier does not match SOP Class
Failed	Unable to process	C001	Peer not authorized to operation
Cancel	Sub-operations terminated due to Cancel Indication	FE00	C-MOVE SCU sent a Cancel Request
Pending	Sub-operations are continuing	0xFF00	Sent after each C-STORE suboperation

When applicable, the optional attribute (0000,0902) Error Comment is used to supplement information about unsuccessful C-MOVE operation.

In case of an exception (a network timeout, a TCP/IP communication error) APFS_Application_Entity will abort the Association using DICOM A-ABORT.

2.2.1.4.4.4. Presentation Context Acceptance Criterion

APFS_Application_Entity accepts any Presentation Context for the supported SOP classes with the supported Transfer Syntaxes.

2.2.1.4.4.5. Transfer Syntax Selection Policies

APFS_Application_Entity accepts the first supported transfer syntax.

2.2.1.4.5. Real-world activity - Modality worklist request

2.2.1.4.5.1. Description and Sequencing of Activities

If configured, APFS_Application_Entity accepts an association from a source application entity to query internal database about stored SOP instances using Modality Worklist C-FIND.

2.2.1.4.5.2. Accepted Presentation Contexts

Table 2.24. Acceptable Presentation Contexts for APFS_Application_Entity

Abstract Syntax Name	Abstract Syntax UID	Transfer Syntax Name	Transfer Syntax UID	Role	Extended Negotiation
Modality Worklist Information Model – FIND	1.2.840.10008.5.1.4.31	Implicit VR Little Endian	1.2.840.10008.1.2	SCP	None

2.2.1.4.5.3. SOP Specific Conformance

APFS_Application_Entity provides standard conformance to the DICOM Basic Worklist Management Service Class.

Case sensitivity/insensitivity and diacritics sensitivity/insensitivity in matching are configurable.

The following table lists the supported matching and returned keys:

Table 2.25. Keys supported for Modality Worklist C-FIND

Attribute name	Tag	Matching	Returned	Remark
Scheduled Procedure Step				
Scheduled Procedure Step Sequence	(0040,0100)	X	X	
>Scheduled Station AE Title	(0040,0001)	X	X	
>Scheduled Procedure Step Start Date	(0040,0002)	X	X	
>Scheduled Procedure Step Start Time	(0040,0003)	X	X	

Attribute name	Tag	Matching	Returned	Remark
>Scheduled Procedure Step Location	(0040,0011)		X	Returned with no value.
>Modality	(0008,0060)	X	X	
>Scheduled Performing Physician's Name	(0040,0006)		X	Returned with no value.
>Scheduled Procedure Step Description	(0040,0007)		X	
>Scheduled Procedure Step ID	(0040,0009)	X	X	
Requested Procedure				
Requested Procedure Description	(0032,1060)		X	
Requested Procedure ID	(0040,1001)	X	X	
Study Instance UID	(0020,000D)		X	
Referenced Study Sequence	(0008,1110)		X	Returned with no value.
Image Service Request				
Accession Number	(0008,0050)	X	X	
Requesting Physician	(0032,1032)		X	
Referring Physician's Name	(0008,0090)		X	
Visit Identification				
Admission ID	(0032,0010)		X	Returned with no value.
Visit Status				
Current Patient Location	(0038,0300)		X	Returned with no value.
Visit Relationship				
Referenced Patient Sequence	(0008,1120)		X	Returned with no value.
Patient Identification				
Patient's Name	(0010,0010)	X	X	
Patient ID	(0010,0020)	X	X	
Patient Demographic				
Patient's Birth Date	(0010,0030)		X	
Patient's Sex	(0010,0040)		X	
Patient's Weight	(0010,1030)		X	
Confidentiality constraint on patient data	(0040,3001)		X	Returned with no value.
Patient's Age	(0010,1010)		X	
Patient's Size	(0010,1020)		X	
Patient Medical				

Attribute name	Tag	Matching	Returned	Remark
Patient State	(0038,0500)		X	Returned with no value.
Pregnancy Status	(0010,21C0)		X	Returned with no value.
Medical Alerts	(0010,2000)		X	Returned with no value.
Contrast Allergies	(0010,2110)		X	Returned with no value.
Patient Weight	(0010,1030)		X	Returned with no value.

The following table summarizes status codes returned to the querying application entity:

Table 2.26. APFS_Application_Entity Modality Worklist C-FIND Response Status

Service Status	Further Meaning	Error Code	Reason
Success	Success	0000	Matching is complete. No final Identifier is supplied.
Refused	Out of Resources	A700	Out of Resources
Failed	Identifier does not match SOP Class	A900	Identifier does not match SOP Class
Cancel	Matching terminated due to Cancel request	FE00	C-FIND SCU sent a Cancel Request
Pending	Matches are continuing - Current Match is supplied and any Optional Keys were supported	FF00	All Optional Keys were supported in the same manner as Required Keys
Pending	Matches are continuing - Warning that one or more Optional Keys were not supported	FF01	One or more Optional Keys were not supported for existence and/or matching for this Identifier

When applicable, the optional attribute (0000,0902) Error Comment is used to supplement information about unsuccessful C-FIND operation.

In case of an exception (a network timeout, a TCP/IP communication error) APFS_Application_Entity will abort the Association using DICOM A-ABORT.

2.2.1.4.5.4. Presentation Context Acceptance Criterion

APFS_Application_Entity accepts any Presentation Context for the supported SOP classes with the supported Transfer Syntaxes.

2.2.1.4.5.5. Transfer Syntax Selection Policies

APFS_Application_Entity supports only the Implicit VR Little Endian transfer syntax.

2.2.1.4.6. Real-world activity - Storage Commitment request

2.2.1.4.6.1. Description and Sequencing of Activities

If configured, APFS_Application_Entity accepts an association from a source application entity to request storage commitment.

2.2.1.4.6.2. Accepted Presentation Contexts

Table 2.27. Acceptable Presentation Contexts for APFS_Application_Entity

Abstract Syntax Name	Abstract Syntax UID	Transfer Syntax Name	Transfer Syntax UID	Role	Extended Negotiation
Storage Commitment Push Model	1.2.840.10008.1.20.1	Implicit VR Little Endian	1.2.840.10008.1.2	SCP	None

2.2.1.4.6.3. SOP Specific Conformance

APFS_Application_Entity provides standard conformance to the DICOM Storage Commitment Push Model Service Class as SCP.

SCP Operations Statement:

- If a Storage Commitment request is received then APFS_Application_Entity will immediately check if the referenced SOP Instances are in the internal database and return a N-EVENT-REPORT Notification. It will not cache Storage Commitment requests nor wait for SOP Instances to be received later.
- APFS_Application_Entity confirms storage commitment of SOP instances according its current state. SOP instances having been committed may be deleted at any point of time later. The deletion can be triggered:
    - by an user of the web-based graphical user interface (for details, see User Guide)
    - by APFS' automatic purging of old data if enabled (for details, see Administrator Guide and Service Guide)
- SOP instances having been committed by Storage Commitment can be retrieved APFS_Application_Entity via its Query/Retrieve services as defined in other places of this document.
- APFS_Application_Entity does not support the optional Storage Media File-Set ID & UID Attributes in the N-ACTION.

The following table summarizes status codes returned to the requesting application entity:

Table 2.28. APFS_Application_Entity Storage Commitment N-ACTION Response Status

Service Status	Further Meaning	Error Code	Reason
Success	Success	0000	Matching is complete. No final Identifier is supplied.
Failure	Processing failure	0110	Processing failure

When applicable, the optional attribute (0000,0902) Error Comment is used to supplement information about unsuccessful N-ACTION operation.

In case of an exception (a network timeout, a TCP/IP communication error) APFS_Application_Entity will abort the Association using DICOM A-ABORT.

2.2.1.4.6.4. Presentation Context Acceptance Criterion

APFS_Application_Entity accepts any Presentation Context for the supported SOP classes with the supported Transfer Syntaxes.

2.2.1.4.6.5. Transfer Syntax Selection Policies

APFS_Application_Entity supports only the Implicit VR Little Endian transfer syntax.

2.3. NETWORK INTERFACES

2.3.1. Physical Network Interfaces

APFS is indifferent to the physical medium over which TCP/IP executes.

2.3.2. Additional Protocols

APFS uses the name resolution (DNS resolution) provided by the underlying operating system.

2.4. CONFIGURATION

The Application Entity title, Port number and timeouts are defined via APFS configuration files (please refer to the *Service Guide*).

The Host name(s) and IP Address(es) are defined by means of the underlying operating system.

2.4.1. AE Title/Presentation Address Mapping

2.4.1.1. Local AE Titles

Table 2.29. AE Title configuration table

AE	Default AE Title	Default TCP/IP Port
APFS_Application_Entity	APFSDCM	2370

2.4.1.2. Remote AE Titles

Remote AE Titles are configured via web-based GUI which is a port of APFS (please refer to the *Administrator Guide*).

2.4.2. Parameters

Table 2.30. Configuration parameters table

Parameter	Configurable	Default Value
General Parameters		

Parameter	Configurable	Default Value
Maximum PDU size the AE can receive	No	16384
Maximum PDU size the AE can send	No	16384
Time-out waiting for response to TCP/IP connect request (Low-level timeout)	Yes	120s
Time-out waiting after opening TCP/IP connection for Association Open Request (Application Level timeout)	Yes	60s
Time-out waiting for acceptance or rejection Response to an Association Open Request (Application Level timeout)	Yes	60s
General DIMSE level time-out values	Yes	600s
DIMSE level time-out for an open C-MOVE request	Yes	600s
Time-out an association may remain idle	Yes	1800s
APFS_Application_Entity		
SOP Class support	Yes	As listed in Proposed/Accepted Contexts above. (APFS configuration may limit support to a subset of those SOP Classes.)
Transfer Syntax support	Yes	As listed in Proposed/Accepted Contexts above. (APFS configuration may limit support to a subset of those Transfer Syntaxes.)

[1] For details of the web GUI see User Guide

[2] For details of the autorouting mechanism see Service Guide

[3] For details of the web GUI see User Guide

Chapter 3. MEDIA INTERCHANGE

APFS does not support Media Storage.

Chapter 4. SUPPORT OF CHARACTER SETS

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APFS supports following character sets:

- ISO_IR 6 = Default repertoire
- ISO_IR 100 = Latin alphabet No. 1 (ISO 8859-1)
- ISO_IR 101 = Latin alphabet No. 2 (ISO 8859-2)
- ISO_IR 192 = Unicode (UTF-8)

APFS does not use code extension techniques (only single value attribute is accepted for the (0008,0005) attribute).

4.1. CONFIGURATION

APFS has specific configuration options which affect the character set support:

1. APFS can run in ascii-only mode. If this applies then:
   - All matching performed by APFS ignores diacritics
   - Query responses returned by APFS contains strings without diacritics
   - String values in the Attributes updated in instances being sent are updated with strings without diacritics

   This mode "simulates" support for only Default repertoire.
2. If APFS doesn't run in ascii-only mode then it can be configured for diacritic-free matching. If it applies then
   - All matching performed by APFS ignores diacritics

For further details please refer to the *Service Guide*.

Warning

The configuration options should not be used unless a strong argument exists. The options are specifically targeted for deployments in the Czech Republic where interoperability is difficult because character sets are often misused.

Chapter 5. SECURITY

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5.1. SECURITY PROFILES

No support of security profiles is provided.

5.2. ASSOCIATION LEVEL SECURITY

APFS checks the following DICOM values when determining whether to accept Association Open Requests:

- Calling AE Title
- IP address of the requester

Please refer to the *Service Guide* for details.

5.3. APPLICATION LEVEL SECURITY

APFS refuses a request (C-STORE Request, C-FIND Request, C-MOVE Request) if the requesting application entity is not authorized to perform it (if it has not an appropriate role). The assignment of roles to application entities is performed by an administrator using a web-based GUI. Please refer to the *Administrator Guide* for details.

Appendix A. Annexes

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A.1. IOD CONTENTS

A.1.1. Created SOP Instance(s)

N/A

A.1.2. Usage of Attributes from received IOD's

N/A

A.1.3. Attribute Mapping

N/A

A.1.4. Coerced/Modified fields

APFS_Application_Entity modifies patient information in the composite instances being sent (in a C-STORE command) with the current information kept in the internal database. The SOP Instance UID stays unchanged. The modified attributes have been listed in the table "Attributes updated in instances being sent" above. Moreover, if specifically configured, APFS_Application_Entity adds a private attribute (0011,xx10) of Private Creator "ICZ APFS" to the composite instances. This attribute serves as a optimization hint of C-STORE between two instances of APFS_Application_Entity. A receiving APFS_Application_Entity always removes this attribute from received composite instances. As noted, this attribute is not added by default; APFS has to be configured to add

this attribute and a specific receiver (C-STORE SCP) has to be listed. For details please refer to "AddPatientsUID" plugin in the *Service Guide*.

A.2. DATA DICTIONARY OF PRIVATE ATTRIBUTES

The Private Attributes added to transferred SOP Instances are listed in the Table below. Further details on usage of these private attributes are contained in "Coerced/Modified fields" above.

Table A.1. Data dictionary of private attributes

Tag	Attribute Name	VR	VM	Value
(0011,00xx)	Private Creator	LO	1	ICZ APFS
(0011,xx10)	Patient's UID	UI	1	UID assigned to the patient in APFS' internal database

syngo CT VA40

DICOM Conformance Statement

SIEMENS Healthineers

1 Introduction

This DICOM Conformance Statement is written according to part PS 3.2 of DICOM® Standards Publication Part(s) 3, 4, ©NEMA.

1.1 Date of issue

The date of issue of this DICOM Conformance Statement document is 2021-06.

1.2 Applicability

The applications described in this conformance statement are implemented in the Siemens Healthineers NAEOTOM CT and SOMATOM CT system products using the Somaris/10 *syngo* CT VA40 software.

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1 Conformance Statement Overview

This conformance statement refers to Somaris/10 the Siemens Healthineers CT acquisition workplace. Refer to **Figure 1: DICOM Data Flow diagram – Acquisition Workflow** and **Figure 2: DICOM Data Flow diagram - Printing** for an overview.

Somaris/10 conforms to the DICOM Standard and supports the network services as described in Table 1: Network Services and the media services as described in Table 2 - Media Services.

Table 1: Network Services

SOP Classes	SOP Class UID	User of Service (SCU)		Provider of Service (SCP)	
Verification					
Verification	1.2.840.10008.1.1	Yes		Yes	
SOP Classes created by Somaris/10					
		Create	**Send**	**Store**	**Display**
CT Image Storage	1.2.840.10008.5.1.4.1.1.2	Yes	Yes	Yes	Yes
Secondary Capture Image Storage	1.2.840.10008.5.1.4.1.1.7	Yes	Yes	Yes	Yes
Raw Data Storage	1.2.840.10008.5.1.4.1.1.66	Yes	Yes	Yes	No
X-Ray Radiation Dose SR Storage	1.2.840.10008.5.1.4.1.1.88.67	Yes	Yes	Yes	Yes
Enhanced SR Storage	1.2.840.10008.5.1.4.1.1.88.22	Yes	Yes	Yes	Yes
Comprehensive SR Storage	1.2.840.10008.5.1.4.1.1.88.33	Yes	Yes	Yes	Yes
Segmentation Storage	1.2.840.10008.5.1.4.1.1.66.4	Yes	Yes	Yes	Yes
RT Structure Set Storage	1.2.840.10008.5.1.4.1.1.481.3	Yes	Yes	Yes	Yes
SOP Classes managed by Somaris/10					
		Create	**Send**	**Store**	**Display**
Computed Radiography Image Storage	1.2.840.10008.5.1.4.1.1.1	Yes	Yes	Yes	Yes
Digital X-Ray Image Storage - For Presentation	1.2.840.10008.5.1.4.1.1.1.1	Yes	Yes	Yes	Yes
Digital X-Ray Image Storage – For Processing	1.2.840.10008.5.1.4.1.1.1.1.1	Yes	Yes	Yes	Yes
Digital Mammography X-Ray Image Storage – For Presentation	1.2.840.10008.5.1.4.1.1.1.2	Yes	Yes	Yes	Yes
Digital Mammography X-Ray Image Storage – For Processing	1.2.840.10008.5.1.4.1.1.1.2.1	Yes	Yes	Yes	Yes
Digital Intra-Oral X-Ray Image - for Presentation - IMAGE	1.2.840.10008.5.1.4.1.1.1.3	Yes	Yes	Yes	Yes
Digital Intra-Oral X-Ray Image - for Processing - IMAGE	1.2.840.10008.5.1.4.1.1.1.3.1	Yes	Yes	Yes	Yes
Enhanced CT Image Storage	1.2.840.10008.5.1.4.1.1.2.1	Yes	Yes	Yes	Yes
Ultrasound Multi-frame Image Storage	1.2.840.10008.5.1.4.1.1.3.1	Yes	Yes	Yes	Yes
MR Image Storage	1.2.840.10008.5.1.4.1.1.4	Yes	Yes	Yes	Yes

SOP Classes	SOP Class UID	User of Service (SCU)		Provider of Service (SCP)	
Enhanced MR Image Storage	1.2.840.10008.5.1.4.1.1.4.1	Yes	Yes	Yes	Yes
MR Spectroscopy Storage	1.2.840.10008.5.1.4.1.1.4.2	Yes	Yes	Yes	Yes
Enhanced MR Color Image Storage	1.2.840.10008.5.1.4.1.1.4.3	Yes	Yes	Yes	Yes
Ultrasound Image Storage	1.2.840.10008.5.1.4.1.1.6.1	Yes	Yes	Yes	Yes
Enhanced US Volume Storage	1.2.840.10008.5.1.4.1.1.6.2	Yes	Yes	Yes	Yes
Multi-frame Single Bit Secondary Capture Image Storage	1.2.840.10008.5.1.4.1.1.7.1	Yes	Yes	Yes	Yes
Multi-frame Grayscale Byte Secondary Capture Image Storage	1.2.840.10008.5.1.4.1.1.7.2	Yes	Yes	Yes	Yes
Multi-frame Grayscale Word Secondary Capture Image Storage	1.2.840.10008.5.1.4.1.1.7.3	Yes	Yes	Yes	Yes
Multi-frame True Color Secondary Capture Image Storage	1.2.840.10008.5.1.4.1.1.7.4	Yes	Yes	Yes	Yes
12-lead ECG Waveform Storage	1.2.840.10008.5.1.4.1.1.9.1.1	Yes	Yes	Yes	Yes
General ECG Waveform Storage	1.2.840.10008.5.1.4.1.1.9.1.2	Yes	Yes	Yes	Yes
Ambulatory ECG Waveform Storage	1.2.840.10008.5.1.4.1.1.9.1.3	Yes	Yes	Yes	Yes
Hemodynamic Waveform Storage	1.2.840.10008.5.1.4.1.1.9.2.1	Yes	Yes	Yes	Yes
Cardiac Electrophysiology Waveform Storage	1.2.840.10008.5.1.4.1.1.9.3.1	Yes	Yes	Yes	Yes
Basic Voice Audio Waveform Storage	1.2.840.10008.5.1.4.1.1.9.4.1	Yes	Yes	Yes	Yes
General Audio Waveform Storage	1.2.840.10008.5.1.4.1.1.9.4.2	Yes	Yes	Yes	Yes
Arterial Pulse Waveform Storage	1.2.840.10008.5.1.4.1.1.9.5.1	Yes	Yes	Yes	Yes
Respiratory Waveform Storage	1.2.840.10008.5.1.4.1.1.9.6.1	Yes	Yes	Yes	Yes
Grayscale Softcopy Presentation State Storage	1.2.840.10008.5.1.4.1.1.11.1	Yes	Yes	Yes	Yes
Color Softcopy Presentation State Storage SOP Class	1.2.840.10008.5.1.4.1.1.11.2	Yes	Yes	Yes	Yes
Pseudo-Color Softcopy Presentation State Storage SOP Class	1.2.840.10008.5.1.4.1.1.11.3	Yes	Yes	Yes	Yes
Blending Softcopy Presentation State Storage	1.2.840.10008.5.1.4.1.1.11.4	Yes	Yes	Yes	Yes
X-Ray Angiographic Image Storage	1.2.840.10008.5.1.4.1.1.12.1	Yes	Yes	Yes	Yes
Enhanced XA Image Storage	1.2.840.10008.5.1.4.1.1.12.1.1	Yes	Yes	Yes	Yes
X-Ray Radiofluoroscopic Image Storage	1.2.840.10008.5.1.4.1.1.12.2	Yes	Yes	Yes	Yes
Enhanced XRF Image Storage	1.2.840.10008.5.1.4.1.1.12.2.1	Yes	Yes	Yes	Yes

SOP Classes	SOP Class UID	User of Service (SCU)		Provider of Service (SCP)	
X-Ray 3D Angiographic Image Storage	1.2.840.10008.5.1.4.1.1.13.1.1	Yes	Yes	Yes	Yes
Breast Tomosynthesis Image Storage	1.2.840.10008.5.1.4.1.1.13.1.3	Yes	Yes	Yes	Yes
Nuclear Medicine Image Storage	1.2.840.10008.5.1.4.1.1.20	Yes	Yes	Yes	Yes
Spatial Registration Storage	1.2.840.10008.5.1.4.1.1.66.1	Yes	Yes	Yes	Yes
Spatial Fiducials Storage	1.2.840.10008.5.1.4.1.1.66.2	Yes	Yes	Yes	Yes
Deformable Spatial Registration SOP Class	1.2.840.10008.5.1.4.1.1.66.3	Yes	Yes	Yes	Yes
Surface Segmentation Storage	1.2.840.10008.5.1.4.1.1.66.5	Yes	Yes	Yes	Yes
Real World Value Mapping Storage	1.2.840.10008.5.1.4.1.1.67	Yes	Yes	Yes	Yes
Basic Text SR Storage	1.2.840.10008.5.1.4.1.1.88.11	Yes	Yes	Yes	Yes
Procedure Log Storage Storage	1.2.840.10008.5.1.4.1.1.88.40	Yes	Yes	Yes	Yes
Mammography CAD SR Storage	1.2.840.10008.5.1.4.1.1.88.50	Yes	Yes	Yes	Yes
Key Object Selection Document Storage	1.2.840.10008.5.1.4.1.1.88.59	Yes	Yes	Yes	Yes
Radiopharmaceutical Radiation Dose SR	1.2.840.10008.5.1.4.1.1.88.68	Yes	Yes	Yes	Yes
Encapsulated PDF Storage SOP Class	1.2.840.10008.5.1.4.1.1.104.1	Yes	Yes	Yes	Yes
Positron Emission Tomography Image Storage	1.2.840.10008.5.1.4.1.1.128	Yes	Yes	Yes	Yes
RT Image Storage	1.2.840.10008.5.1.4.1.1.481.1	Yes	Yes	Yes	Yes
RT Dose Storage	1.2.840.10008.5.1.4.1.1.481.2	Yes	Yes	Yes	Yes
RT Beams Treatment Record Storage	1.2.840.10008.5.1.4.1.1.481.4	Yes	Yes	Yes	Yes
RT Plan Storage	1.2.840.10008.5.1.4.1.1.481.5	Yes	Yes	Yes	Yes
Radio Therapy Brachy Treatment Record Storage	1.2.840.10008.5.1.4.1.1.481.6	Yes	Yes	Yes	Yes
RT Treatment Summary Record Storage	1.2.840.10008.5.1.4.1.1.481.7	Yes	Yes	Yes	Yes
RT Ion Plan Storage	1.2.840.10008.5.1.4.1.1.481.8	Yes	Yes	Yes	Yes
RT Ion Beams Treatment Record Storage	1.2.840.10008.5.1.4.1.1.481.9	Yes	Yes	Yes	Yes
Hanging Protocol Storage	1.2.840.10008.5.1.4.38.1	Yes	Yes	Yes	Yes
Transfer (Private SOP Class)					
Syngo Non-Image Storage	1.3.12.2.1107.5.9.1	Yes		Yes	
Storage Commitment					
Storage Commitment Push Model SOP Class	1.2.840.10008.1.20.1	Yes		No	
Worklist Management					
Modality Worklist Information Model - FIND	1.2.840.10008.5.1.4.31	Yes		No	
Modality Performed Procedure Step SOP Class	1.2.840.10008.3.1.2.3.3	Yes		No	
Query/Retrieve					

SOP Classes	SOP Class UID	User of Service (SCU)	Provider of Service (SCP)
Patient Root Q/R Information Model - FIND	1.2.840.10008.3.1.2.3.3	No	No
Patient Root Q/R - Information Model - MOVE	1.2.840.10008.5.1.4.1.2.1.2	No	No
Study Root Q/R - Information Model - FIND	1.2.840.10008.5.1.4.1.2.2.1	Yes	No
Study Root Q/R - Information Model - MOVE	1.2.840.10008.5.1.4.1.2.2.1	Yes	No
Patient/Study Only Q/R - Information Model FIND	1.2.840.10008.5.1.4.1.2.2.1	No	No
Patient/Study Only Q/R - Information Model MOVE	1.2.840.10008.5.1.4.1.2.3.2	No	No
Print Management			
Basic Grayscale Print Management Meta SOP Class	1.2.840.10008.5.1.1.9	Yes	No
Basic Color Print Management Meta SOP Class	1.2.840.10008.5.1.1.18	Yes	No
Basic Film Sesssion SOP Class	1.2.840.10008.5.1.1.1	Yes	No
Basic Film Box SOP Class	1.2.840.10008.5.1.1.2	Yes	No
Basic Grayscale Image Box SOP Class	1.2.840.10008.5.1.1.4	Yes	No
Basic Color Image Box SOP SOP Class	1.2.840.10008.5.1.1.4.1	Yes	No
Printer SOP Class	1.2.840.10008.5.1.1.16	Yes	No
Print Job SOP Class	1.2.840.10008.5.1.1.14	Yes	No
Presentation LUT SOP Class	1.2.840.10008.5.1.1.23	Yes	No

Table 2 - Media Services

Media Storage Application Profile	Write Files (FSC or FSU)	Read Files (FSR)
Compact Disk - Recordable		
STD-GEN-CD	Yes	Yes
AUG-GEN-CD	Yes	Yes
DVD		
AUG-GEN-DVD	Yes	Yes
AUG- GEN-DVD-J2K	Yes	Yes
STD-GEN-DVD	Yes	Yes
STD-GEN-DVD-J2K	Yes	Yes
Blu-Ray		
AUG-GEN-BD	Yes	Yes
AUG- GEN-BD-J2K	Yes	Yes
STD-GEN-BD	Yes	Yes
STD-GEN-BD-J2K	Yes	Yes
USB		
AUG- GEN-USB-J2K	Yes	Yes
STD-GEN-USB-J2K	Yes	Yes

Somaris/10 creates ISO files to be burnt by local burning SW (if hardware and software are available). Therefore it is only possible to update DICOMDIRs before the burning process has been started. When selecting the 'Standard' profile from the export UI, the export job will be handled according to the STD-GEN-XXX profile; depending on which media has been selected. In case the 'Patient' profile is selected, the STD-GEN-XXX-J2K profile will be used, depending on which media or destination has been selected.

Table 3 - Implementation Identifying Information

Name	Value
Application Context Name	1.2.840.100008.3.1.1.1
Implementation Class UID	1.3.12.2.1107.5.1.7
Implementation Version Name	SIEMENS_S10VA40A

2 Table of Contents

3 Introduction

3.1 Revision history

Version/ Status	Date of Issue	Product / Version	Author	Change & Reason of Change
1.0	2020-06-11	Somaris/10 VA40A	Iserhardt-Bauer, Sabine (SHS DI CT R&D ISA DEV2)	Incorporate Somaris/10 VA40 specific content.

3.2 Audience

This document is intended for hospital staff, health system integrators, software designers or implementers. It is assumed that the reader has a working understanding of DICOM.

3.3 Remarks

The scope of this DICOM Conformance Statement is to facilitate integration between Somaris/10 and other DICOM products. The Conformance Statement should be read and understood in conjunction with the DICOM PS3.1-3.20 2016a Standard [1]. DICOM by itself does not guarantee interoperability.

The Conformance Statement does, however, facilitate a first-level comparison for interoperability between different applications supporting compatible DICOM functionality.

This Conformance Statement is not supposed to replace validation with other DICOM equipment to ensure proper exchange of intended information. In fact, the user should be aware of the following important issues:

The comparison of conformance statements is the first step towards assessing interconnectivity and interoperability between Somaris/10 and other DICOM conformant equipment.

Test procedures should be defined and executed to validate the required level of interoperability with specific compatible DICOM equipement, as established by the healthcare facility.

Siemens reserves the right to modify the design and specifications contained herein without prior notice. Please contact your local Siemens representative for the most recent product information.

3.4 Definitions, Terms and Abbreviations

Definitions, terms and abbreviations used in this document are defined within the different parts of the DICOM standard.

Additional Abbreviations and terms are as follows:

AE	DICOM Application Entity
AET	Application Entity Title
ASCII	American Standard Code for Information Interchange
DCS	DICOM Conformance Statement
DICOM	Digital Imaging and Communications in Medicine
FSC	File Set Creator
FSR	File Set Reader
FSU	File Set Updater

GSDF	Grayscale Standard Display Function
IOD	DICOM Information Object Definition
ISO	International Standard Organization
n. a.	not applicable
NEMA	National Electrical Manufacturers Association
O	Optional Key Attribute
PDU	DICOM Protocol Data Unit
R	Required Key Attribute
SCU	DICOM Service Class User (DICOM client)
SCP	DICOM Service Class Provider (DICOM Server)
SOP	DICOM Service-Object Pair
SR	Structured Report
TFT	Thin Film Transistor (Display)
TID	Template ID
U	Unique Key Attribute
UID	Unique Identifier
UTF-8	Unicode Transformation Format-8
VR	Value Representation

Further DICOM related abbreviations used in this document can be found in [1]

3.5 References

[1] Digital Imaging and Communications in Medicine , National Electrical Manufacturers Association (NEMA), https://www.dicomstandard.org/ /

[2] Integrating the Healtcare Enterprise – IHE Radiology Technical Framework – http://www.ihe.net

4 Networking

4.1 Implementation Model

Somaris/10 supports storing DICOM images to remote nodes like workstations or Archiving Systems. Using the Storage Commitment Service it can request safe keeping of previously stored instances from an Archiving system. Additionally the Somaris/10 can query remote notes, retrieve and store selected instances from that node. Using the Modality Worklist service the Somaris/10 can query a HIS/RIS for scheduled procedures. Performed procedure status and other procedure data can be returned to the HIS/RIS using the Modality Performed Procedure Step (MPPS) Service. Furthermore printing of color and grayscale images is supported.

4.1.1 Application Data Flow

The following figures provide a functional overview of the Somaris/10 Application Entities (AE). Relationships are shown between user-invoked activities (in the circles at the left of the AEs) and the associated real-world activities provided by DICOM service providers (in the circles at the right of the AEs)

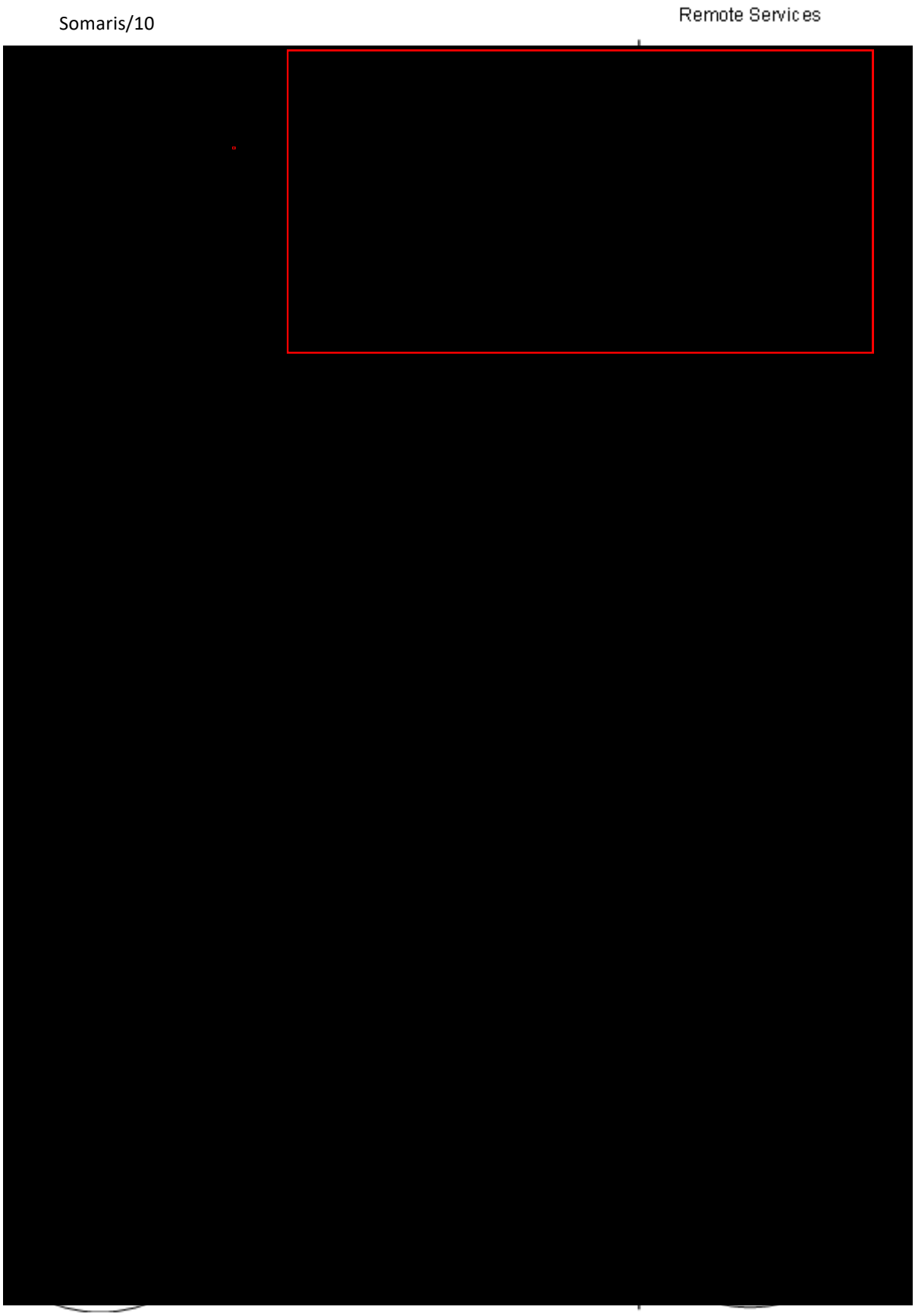

Figure 1: DICOM Data Flow diagram – Acquisition Workflow

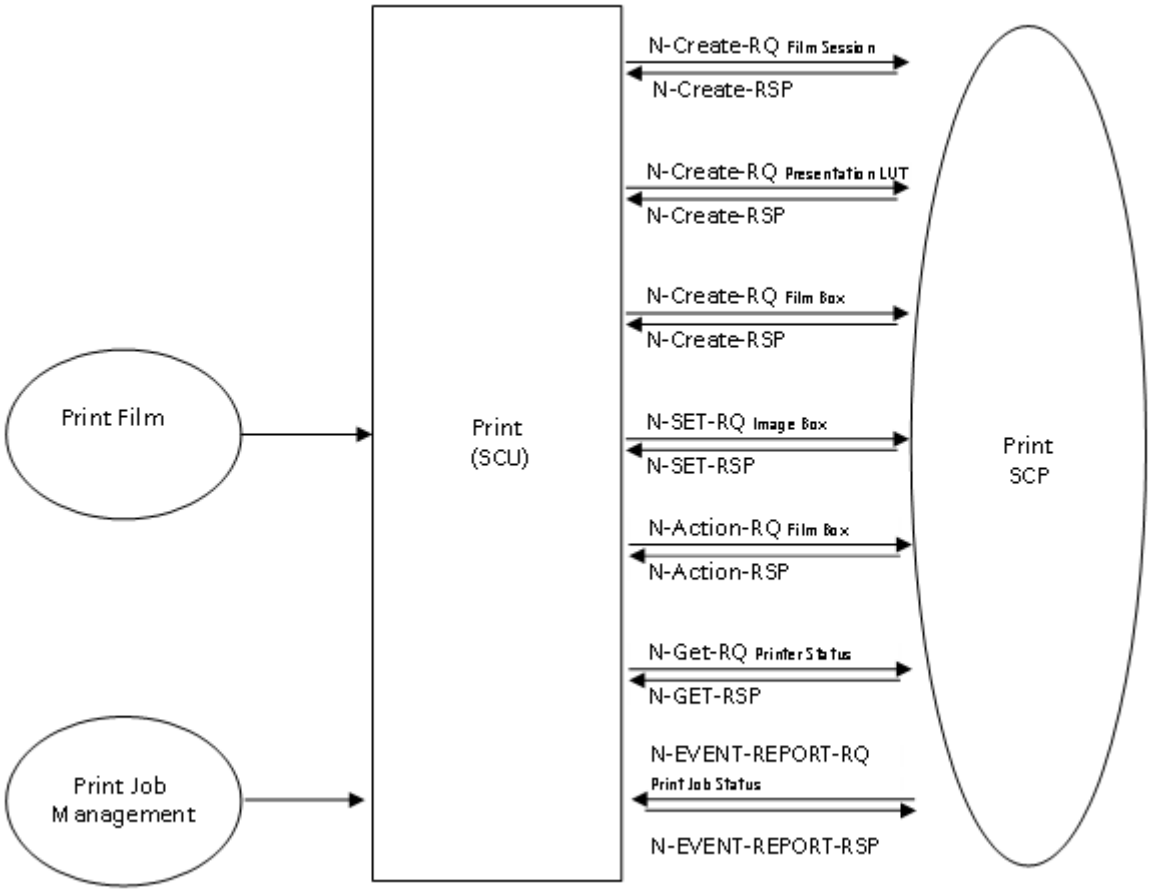

Figure 2: DICOM Data Flow diagram - Printing

4.1.2 Functional Definitions of Application Entities

The SCP components of the Application Entities of the operate as background server processes. They exist as soon as the system is powered up and wait for association requests. Upon accepting an association with a negotiated Presentation Context they start to receive and process the requests described in the following sections.

The SCU components of the Application Entity are invoked upon requests from the user interface or indirect by trigger from internal processes.

4.1.2.1 Functional Definition of Verification AE

The Somaris/10 supports the Verification service as a SCP and SCU. As a SCU, Verification can be activated from the Administrator Portal during system configuration by sending a C-ECHO-Request.

As a SCP of the Verification Service the processes and responds to incoming verification requests using the C-ECHO-Response.

4.1.2.2 Functional Definition of Storage AE

The Somaris/10 Storage SCU is invoked either directly by the user, by an auto-archive trigger or internally by the Query/Retrieve Application Entity that is responsible for processing retrieve requests. The job consists of data describing the composite objects selected for storage and the destination Application Entity Title. An association is negotiated with the destination Application Entity and the image data is transferred using the C-STORE-Request. The transfer status is reported to the initiator of the Storage request.

The Storage SCP component of the Somaris/10 starts to receive the Composite Objects and import them into the database after accepting an association with a negotiated Presentation Context. The system responses to the Storage Request immediately after reception of the Data.

4.1.2.3 Functional Definition of the Storage Commitment AE

If configured, the Somaris/10 can serve as a SCU for the DICOM Storage Commitment service. Upon successful completion of a storage job, the system uses the N-ACTION-Request to request storage commitment from a remote DICOM storage commitment SCP. This can either be the same as the storage destination or a different system depending on the system configuration. Storage Commitment Requests are sent after a configurable delay after storing the objects. The Somaris/10 can receive the N-EVENT-REPORT-Request on the same or a different association.

4.1.2.4 Functional Definition of Query/Retrieve AE

The Somaris/10 supports DICOM Query/Retrieve as a SCU: The user can initiate a query to a remote node using the C-FIND-Request. After matching the specified keys, the remote Query /Retrieve SCP uses the C-FIND-Response to return the results of its search, which will be displayed to the user. Depending on user action the Somaris/10 Query/Retrieve DICOM SCU sends a C-MOVE-Request to initiate a C-STORE sub-operation on the SCP to start an image transfer from remote Storage SCU (running on Query/Retrieve SCP) to the system's Storage SCP.

The Somaris/10 supports the following query models:

- Study Root Query Model

Furthermore the SCU services may issue relational queries, if supported by the remote Query/Retrieve SCP node and required by the querying Application.

The Somaris/10 DICOM Query/Retrieve SCP accepts C-FIND Request, queries the local database based on the provided matching keys and returns the matches using the C-FIND-Response. Depending on further request from the remote Query/Retrieve SCU, the responds to C-MOVE-Requests by initiating a C-STORE sub-operation to send image objects to the Storage SCP of the querying system.

4.1.2.5 Functional Definition of Modality Worklist AE

The Somaris/10 Modality Worklist SCU issues DICOM Modality Worklist requests using C-FIND-Requests. The results in the C-FIND-Response are stored in internal database. The provided Patient and Procedure information is used for patient registration prior to starting an exam.

4.1.2.6 Functional Definition of Modality Performed Procedure Step SCU AE

The Somaris/10 MPPS SCU uses the N-CREATE-Request to inform an Information System that a procedure step is IN PROGRESS.

The Somaris/10 MPPS SCU uses the N-SET-Request to inform the Information System about the finalization of the Procedure Step, using either a status of COMPLETED or DISCONTINUED.

4.1.2.7 Functional Definition of Print AE

The Print SCU of the Somaris/10 is invoked by the user interface to setup film-sheet layout and whenever an image is ready to be printed on film. The Print SCU will hold and maintain all data needed to compile a complete film-sheet from the data (images, layout, configuration) received. Whenever a film-sheet is ready to print the related data is used to supply the Information to the SOP Classes of the Print Management Service Class. A queue is maintained in order to intermediately store several film-sheets in case of resource problems on printer. The SCU will only supply and require the mandatory SOP Classes of the Print Management Service Class.

4.1.3 Sequencing of Activities

This section describes the sequencing of Real-World Activities performed by the Somaris/10 Entities using a UML sequence diagram. Real-World Activities are depicted as vertical bars and arrows show the events exchanged between them

4.1.3.1 System Configuration

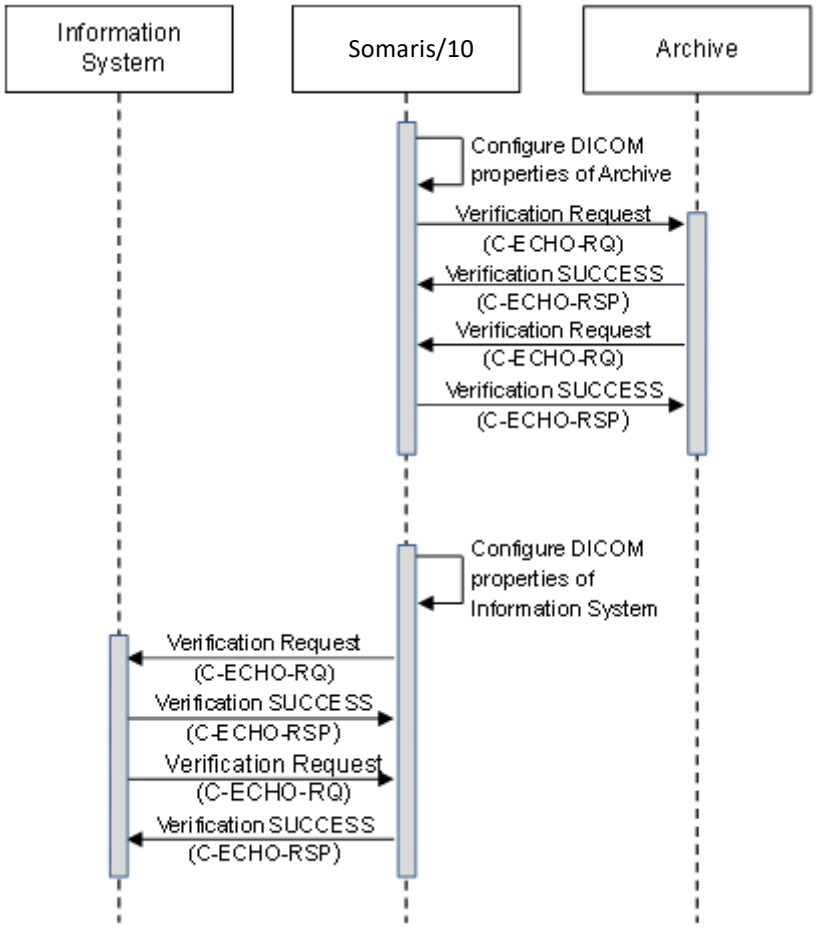

Figure 3: Sequence Diagram for Real World Activities - System Configuration

4.1.3.2 Acquisition Workflow

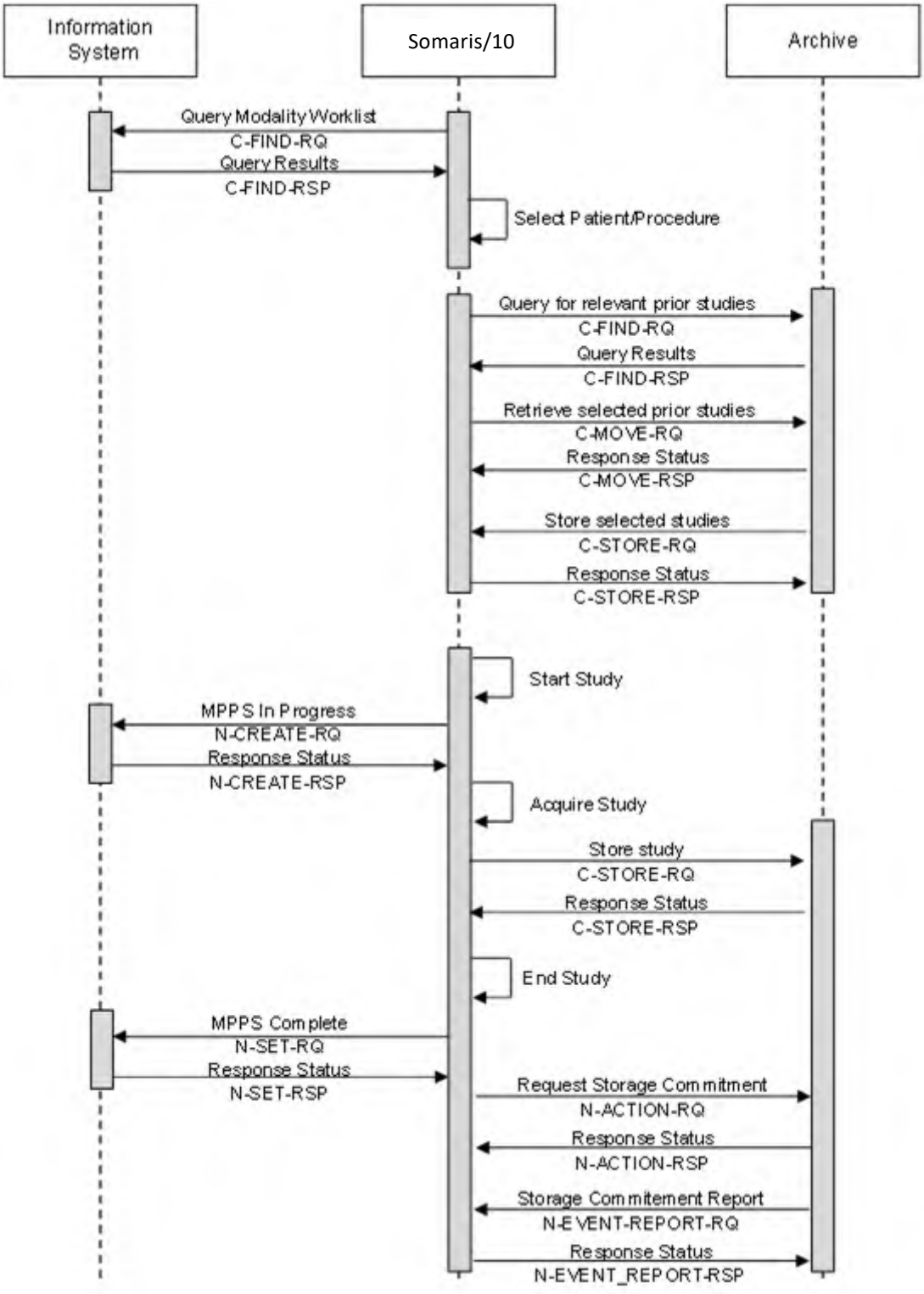

Figure 4: Sequence Diagram for Real World Activities -Acquisition workflow

4.1.3.3 Printing Workflow

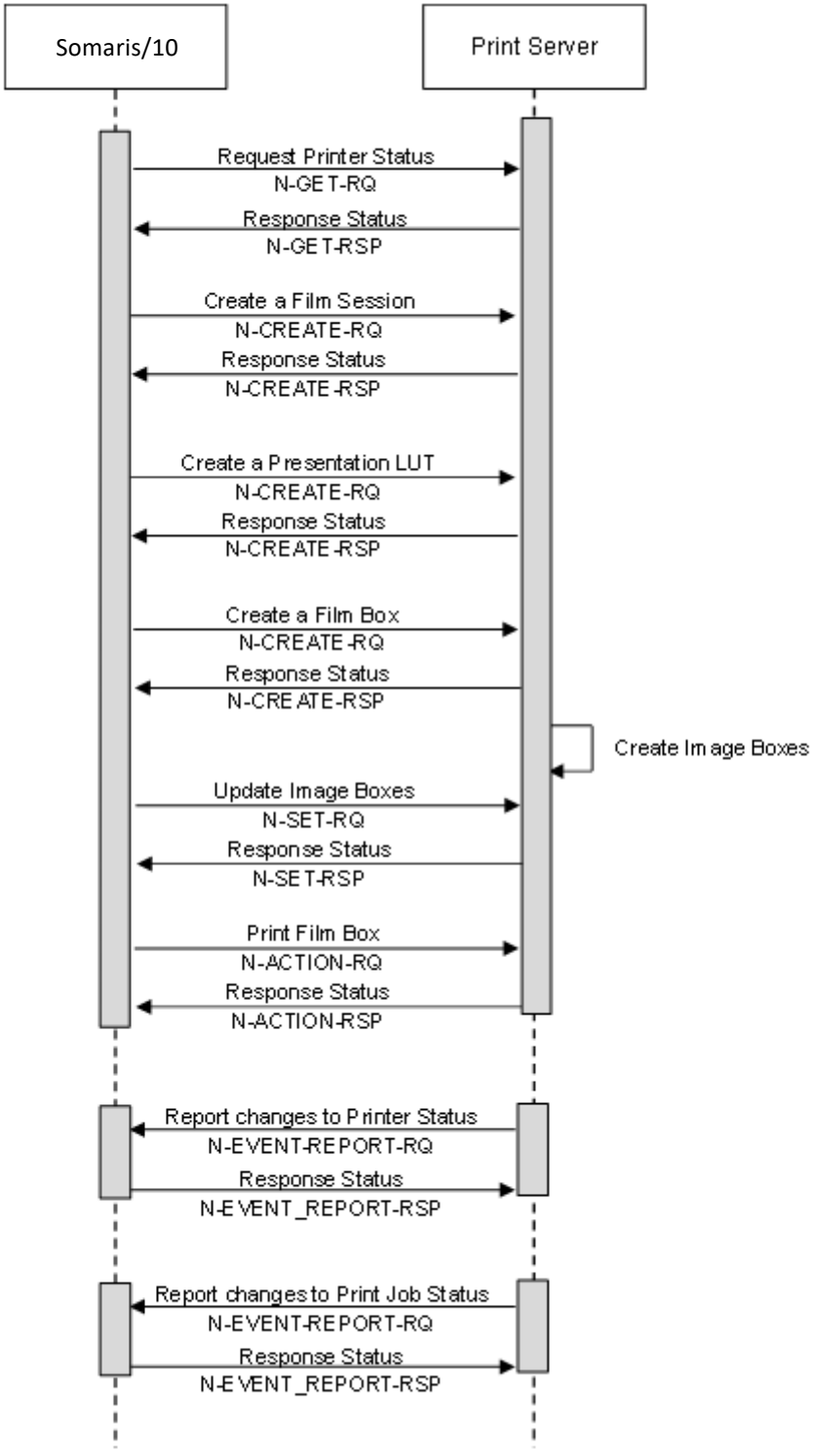

Figure 5: Sequence Diagram for Real World Activities - Printing

4.2 Application Entity Specification

This section outlines the specifications for each of the Application Entities that are part of the Somaris/10 .

4.2.1 Verification AE Specification

4.2.1.1 SOP Classes

The Verification AE of the Somaris/10 provides standard conformance to the Verification SOP Class listed in “Table 1: Network Services” section "Verification" in the “Conformance Statement Overview”.

4.2.1.2 Association Policy

The Somaris/10 Admin Portal attempts to open an association for verification request whenever the Verification function is activated.

Table 4: Association Policies

Application Context Name	1.2.840.10008.3.1.1.1
PDU size	32 kB [1]
Maximum number of simultaneous associations as an association acceptor	12[1]
Maximum number of simultaneous associations as an association initiator	unlimited

4.2.1.2.1 Asynchronous Nature

The Somaris/10 supports asynchronous communication (multiple outstanding transactions over a single association). On the SCU side the Window size proposed is infinite. On the SCP Side any size is supported.

Table 5: Asynchronous Nature as an Association Initiator

Maximum number of outstanding asynchronous transactions	10

4.2.1.2.2 Implementation Identifying Information

For Implementation Identifying Information please refer to “Table 3 - Implementation Identifying Information” in the “Conformance Statement Overview”.

4.2.1.3 Association Initiation Policy

4.2.1.3.1 Activity – “Send Verification” Request

4.2.1.3.1.1 Description and Sequencing of Activity

The Somaris/10 serves as a SCU of the Verification Service Class. A C-ECHO-Request is initiated by the Administrator Portal whenever "Verification" is requested. If an association to a remote Application Entity is successfully established, Verification with the configured AET is requested via the open association. If the

[1] Default, the value is configurable

C-ECHO Response from the remote Application contains a status other than "Success" this will be indicated to the user and the association is closed.

4.2.1.3.1.2 Proposed Presentation Contexts

Table 6 - Presentation Context Table "Verification" below lists the supported presentation contexts for verification requests.

Table 6 - Presentation Context Table "Verification"

Presentation Context Table – "Verification"					
Abstract Syntax		Transfer Syntax		Role	Extended Negotiation
Name	UID	Name List	UID List		
Verification	1.2.840.10008.1.1	Implicit VR Little Endian	1.2.840.10008.1.2	SCU	None

4.2.1.3.1.3 SOP Specific Conformance – Verification SCU

The ECHO-SCU provides standard conformance to the Verification Service Class.

4.2.1.4 Association Acceptance Policy

4.2.1.4.1 Activity – "Receive Verification Request"

4.2.1.4.1.1 Description and Sequencing of Activity

The Somaris/10 serves as a SCP of the Verification Service Class. If the Verification SCP accepts an association, it will respond to C-ECHO-Requests. If the Called AE Title does not match any pre-configured AE Title shared by SCP, the association will be rejected.

4.2.1.4.1.2 Accepted Presentation Contexts

The Somaris/10 DICOM application will accept Presentation Contexts as shown in the following table:

Table 7 - Presentation Context Table "Verification"

Presentation Context Table – "Verification"					
Abstract Syntax		Transfer Syntax		Role	Extended Negotiation
Name	UID	Name List	UID List		
Verification	1.2.840.10008.1.1	Implicit VR Little Endian	1.2.840.10008.1.2	SCP	None

4.2.1.4.1.3 SOP Specific Conformance – Verification SCP

The ECHO-SCP provides standard conformance to the Verification Service Class.

4.2.2 Storage AE Specification

4.2.2.1 SOP Classes

The Storage AE provides Standard Conformance to the the SOP Classes listed in “Table 1: Network Services” section "SOP Classes Created by the Somaris/10 " and "SOP Classes Managed by the Somaris/10 " in the “Conformance Statement Overview”.

4.2.2.2 Association Policy

Table 8: Association Policies

Application Context Name	[redacted]
[redacted]	
[redacted]	
[redacted]	

The Somaris/10 contains a limitation of 512 kB for the maximum PDU size. By default, the PDU size is set to 32kB.

The maximum number of simultaneous receiving associations (SCP) is configurable at run time, based on the system resources available. By default, the maximum number of associations is set to 12.

There is no inherent limit to the number of outgoing associations (SCU), other than limits imposed by the computer operating system.

4.2.2.2.1 Asynchronous Nature

The Somaris/10 supports asynchronous communication (multiple outstanding transactions over a single association). On the SCU side the Window size proposed is infinite. On the SCP Side any non-infinite maximum size will be accepted.

Table 9: Asynchronous Nature as an Association Initiator

Maximum number of outstanding asynchronous transactions	10

4.2.2.2.2 Implementation Identifying Information

For Implementation Identifying Information please refer to “Table 3 - Implementation Identifying Information” in the “Conformance Statement Overview”.

4.2.2.3 Association Initiation Policy

4.2.2.3.1 Activity – “Send Storage Request”

4.2.2.3.1.1 Description and Sequencing of Activities

[1] Default, the value is configurable

The Somaris/10 serves as a SCU of the Storage Service Class. The Storage SCU is triggered by the transfer job queue or by an external retrieve request. An association request is sent to the destination AE. Upon successful negotiation of a Presentation Context, the transfer is started. Objects will be transferred sequentially on the same open association

4.2.2.3.1.2 Proposed Presentation Contexts

For all Image Objects listed in Table 1 in the Conformance Statement Overview the Transfer Syntaxes marked with “yes” in the Image Objects Column of the table below are supported.

For all Non-Image Objects listed in Table 1 in the Conformance Statement Overview the Transfer Syntaxes marked with “yes” in the Non-Image Objects Column of the table below are supported.

For a distinction between Image and Non-Image Objects please refer to the DICOM Standard PS3.3 Section A.1.4 “Overview of the Composite IOD Module Content” [1].

Table 10: Proposed Presentation Contexts for Storage

UID value	Transfer Syntax	Image Objects	Non-Image Objects
1.2.840.10008.1.2	Implicit Value Representation Little Endian native	yes	yes
1.2.840.10008.1.2.1	Explicit Value Representation Little Endian native	yes	yes
1.2.840.10008.1.2.2	Explicit Value Representation Big Endian	yes	yes
1.2.840.10008.1.2.4.50	JPEG Baseline (Process 1) lossy compressed	yes	no
1.2.840.10008.1.2.4.51	JPEG Extended (Process 2 & 4) lossy compressed	yes	no
1.2.840.10008.1.2.4.70	JPEG Lossless, Non-Hierarchical, First-Order Prediction (Process 14) lossless compressed	yes	no
1.2.840.10008.1.2.4.90	JPEG 2000 Image Compression (Lossless Only) compressed	yes	no
1.2.840.10008.1.2.4.91	JPEG 2000 Image Compression lossy compressed	yes	no
1.2.840.10008.1.2.5	RLE Lossless compressed	yes	no

Depending on the configuration, the Storage SCU will choose a compressed or uncompressed Transfer Syntax among those accepted by the SCP. The Transfer Syntax chosen is the preferred one among the compressed and uncompressed ones. The preference order is the order of occurrence in the configuration. For each node it is possible to select Transfer Syntaxes, that can be used, and Transfer Syntaxes, that are excluded. The configuration can even be extended, based on the combination of SOP Classes and supported Transfer Syntaxes.

An instance will be JPEG lossless compressed only if it fulfills the following criteria:

- Is an image and not already compressed
- Photometric Interpretation (0028,0004) is either MONOCHROME1, MONOCHROME2, RGB, YBR_FULL or YBR_FULL_422
- Bits Allocated (0028,0100) equal to ‘16 or ‘8'

- Bits Stored (0028,0101) equal to ‘12' or ‘8'
- High Bit (0028,0102) equal to Bits Stored (0028,0101) - 1
- Pixel Representation (0028,0103) equal to ‘0'

An instance will be JPEG lossy compressed during transfer only if the following criteria is fulfilled:

- Is an image
- Photometric Interpretation (0028,0004) is either MONOCHROME1, MONOCHROME2 or RGB
- Bits Allocated (0028,0100) equal to ‘16' or ‘8'
- Bits Stored (0028,0101) equal to ‘12' or ‘8'
- High Bit (0028,0102) equal to Bits Stored (0028,0101) - 1
- Pixel Representation (0028,0103) equal to ‘0'
- Only lossy transfer syntaxes are supported (Implicit Little Endian is not supported) at the remote side

An instance will be JPEG 2000 lossless compressed only if it fulfills the following criteria:

- Is an image and not already compressed
- Photometric Interpretation (0028,0004) is either MONOCHROME, RGB, YBR_FULL or YBR_FULL_422
- Bits Allocated (0028,0100) equal to ‘16' or ‘8'

An instance will be RLE lossless compressed only if it fulfills the following criteria:

- Is an image and not already compressed
- Photometric Interpretation (0028,0004) is MONOCHROME, RGB, YBR_FULL or RGB
- Bits Allocated (0028,0100) neither ‘16' nor ‘8'

An instance will be JPEG 2000 lossy compressed during transfer only if the following criteria is fulfilled:

- Is an image
- Photometric Interpretation (0028,0004) is MONOCHROME or RGB
- Bits Stored (0028,0101) equal to ‘12' or ‘8'
- Only lossy transfer syntaxes are supported (Implicit Little Endian is not supported) at the remote side

There is no extended negotiation as an SCU.

4.2.2.3.1.3 SOP specific Conformance for SOP classes

The Somaris/10 does not add or change private attributes by default, even in case objects are compressed or the image header is updated according to IHE [2] Patient Information Reconciliation Profile.

The behavior of Somaris/10 when encountering status codes in a C-STORE response is summarized in Table 11:

Table 11: DICOM Command Response Status Handling Behavior

Service Status	Further Meaning	Error Code	Behavior
Error	Any other DIMSE Error Status	Any none null Code	Send is continued till the end. Log message is created.
Success	Image is successfully stored	0000	If configured, Storage Commitment is requested for successfully stored instances

Table 12 below indicates the behavior if exceptions occur:

Table 12: DICOM Command Communication Failure Behavior

Exception	Behavior
Timeout	Log message is created (Timeout configurable; default 30s)
Association Aborted	Send is failed. Log message is created.

4.2.2.3.1.4 Correction and Rearrangement

When a Study is moved to a different:

- Procedure received through a DICOM Modality Worklist, the Study Instance UID is overwritten with the Study Instance UID and Accession Number of the Procedure.
- Patient, the system generates a new Study Instance UID.

The system will not update references to the changed Study Instance UIDs, therefore it is possible that there will be broken links between Studies after such move operations.
In case of Patient Merge and Correction no UIDs are changed, therefore it is advised to delete any corrected or rearranged objects from the PACS before attempting to archive them again, to ensure that the PACS system can store them successfully.

When the Patient Position (0018,5100) attribute is corrected, the following attributes are recalculated by the system (no UIDs are changed):
1) Image Position (0020,0032)
2) Image Orientation (0020,0037)
3) Patient Orientation (0020,0020)
4) Data Collection Center (Patient) (0018,9313) (CT only)
5) Reconstruction Target Center (Patient) (0018,9318) (CT only)
6) Positioner Primary Angle (0018,1510) (XA only)
7) Positioner Secondary Angle (0018,1511) (XA only)

Also the value of the Slice Location (0020,1041) attribute is emptied, and a new Frame of Reference UID (0020,0052) is generated for the corrected series.
When the Patient Birth Date or the Study Date is corrected, the system recalculates the Patient Age.
A new item containing attributes that were removed or replaced by other values is added to the Original Attribute Sequence (0400,0561).

4.2.2.4 Association Acceptance Policy

4.2.2.4.1 Activity – “Receive Storage Request”

4.2.2.4.1.1 Description and Sequencing of Activities

The Somaris/10 serves as a SCP of the Storage Service Class. The storage SCP accepts incoming C-Store Request from any configured AE Title, receives supported objects transmitted on that association and stores them in the local database.

4.2.2.4.1.2 Accepted Presentation Contexts

For all supported Transfer Objects (see “Table 1: Network Services” section "SOP Classes Created by the Somaris/10 " and "SOP Classes Managed by the Somaris/10 " in the “Conformance Statement Overview”.) the Transfer Syntaxes described in Table 10: Proposed Presentation Contexts for Storage are supported.

Generally all Presentation Contexts are accepted as long as they contain at least one suitable Transfer Syntax. All other Presentation Contexts are rejected.

There is no Extended Negotiation as an SCP

4.2.2.4.1.3 SOP-specific Conformance Statement for Storage SOP classes

The Somaris/10 conforms to the Full Storage Class at Level 2.

In case of a successful C-STORE operation, the image has successfully been received in the negotiated transfer syntax.

The Storage AE of the Somaris/10 returns the status “success” when the data is received, and a minimal image header validation has been performed.

The following header attributes must be available and filled:

- SOP Class UID,
- Study Instance UID,
- Series Instance UID and
- SOP Instance UID.

Table 13 below list the status codes that the Somaris/10 can return:

Table 13: Storage C-STORE Response Status

Service Status	Further Meaning	Error Code	Reason
Success	Success	0000	Image received correctly (success notification is done after receiving, before indexing and storing)
Failure	Out-of-resource	A700	No resource left in the Short-Term Storage
Failure	Unable to Process	Cxxx	Error during instance reception
Failure	Data set does not match SOP Class	A9xx	The data set is not conformed to the SOP Class contained in the resource.

Restriction: Depending on response configuration successful operation does not guarantee storage on disk and storage of header data in the database.

4.2.2.4.1.4 Other SOP specific behavior

If an image is received that is already stored in the database - identified by the SOP Instance UID - the new image will be ignored. The existing instance is not superseded.

4.2.3 Storage Commitment AE Specification

4.2.3.1 SOP Classes

The Storage Commitment AE of the Somaris/10 provides standard conformance to the SOP Class listed in "Table 1: Network Services" section "Storage Commitment" in the "Conformance Statement Overview".

4.2.3.2 Association Policy

Table 14: Association Policies

Application Context Name	[redacted]
[redacted]	
[redacted]	
[redacted]	

The Somaris/10 contains a limitation of 512 kB for the maximum PDU size. By default, the PDU size is set to 32kB.

The maximum number of simultaneous receiving associations (SCP) is configurable at run time, based on the system resources available. By default, the maximum number of associations is set to 12.

There is no inherent limit to the number of outgoing associations (SCU), other than limits imposed by the computer operating system.

4.2.3.2.1 Asynchronous Nature

The Somaris/10 supports asynchronous communication (multiple outstanding transactions over a single association). On the SCU side the Window size proposed is infinite. On the SCP Side any non-infinite maximum size will be accepted.

Table 15: Asynchronous Nature as an Association Initiator

Maximum number of outstanding asynchronous transactions	10

4.2.3.2.2 Implementation Identifying Information

For Implementation Identifying Information please refer to "Table 3 - Implementation Identifying Information" in the "Conformance Statement Overview".

[1] Default, the value is configurable

4.2.3.3 Association Initiation Policy

4.2.3.3.1 Activity “Send Initial Storage Commitment”

4.2.3.3.1.1 Description and Sequencing of Activities

The Somaris/10 serves as a SCU of the Storage Commitment Service Class. After successful transfer of Imaging Objects to a configured Archive, the Storage Commitment SCU initiates an N-Action Request, if Storage Commitment is configured. This request will be sent on a different association than the storage request.

The Storage Commitment Request will be sent out with a delay, in order to ensure that the remote node properly indexes received instances. The delay time is configurable with a default delay of 10 minutes.

The system may issue one N-ACTION Request for a complete set (bundle) of instances or issue one N-ACTION-Request per instance. This behavior is configurable; the default value is “bundled”.

The Somaris/10 will accept the N-Event-Report-Request on the same association if sent immediately after the N-ACTION-Response. However, it will not wait for it. The association is closed after three seconds.

4.2.3.3.1.2 Proposed Presentation Contexts

The Somaris/10 DICOM application supports the presentation contexts listed in the following table for the Storage Commitment Service Class.

Table 16: Proposed Presentation Contexts for Storage Commitment

Presentation Context Table					
Abstract Syntax		**Transfer Syntax**		**Role**	**Ext. Neg.**
Name	**UID**	**Name List**	**UID List**		
Storage Commitment Push Model	1.2.840.10008.1.20.1	Implicit VR Little Endian	1.2.840.10008.1.2	SCU	None
		Explicit VR Little Endian	1.2.840.10008.1.2.1		
		Explicit VR Big Endian	1.2.840.10008.1.2.2		

4.2.3.3.1.3 SOP specific Conformance for SOP classes

The behavior of Somaris/10 when encountering status codes in an N-ACTION response is summarized in Table 17:

Table 17: DICOM Command Response Status Handling Behavior

Service Status	Further Meaning	Error Code	Behavior
Error	Any failure that occurs	Any none null Code	Failure reported to user; corresponding object(s) will be marked as "Archived failed"
Success	All Instances are available on the remote node	0000	Success reported to user; in case failures exist, the corresponding instances will be marked as "Archived failed"

Table 18 below indicates the behavior if exceptions occur:

Table 18: DICOM Command Communication Failure Behavior

Exception	Behavior
Timeout	Failure reported to user (Timeout configurable; default 30s); the request will be retried
Association Aborted	Failure reported to user; the request will be retried

4.2.3.4 Association Acceptance Policy

4.2.3.4.1 Activity "Receive Reply to Initial Storage Commitment"

4.2.3.4.1.1 Description and Sequencing of Activities

The Somaris/10 supports the reverse role negotiation of the Storage Commitment Service Class as the SCU. It accepts incoming N-EVENT-REPORT-Request, if they do not arrive on the same association as the N-ACTION-Request.

4.2.3.4.1.2 Accepted Presentation Contexts

The Somaris/10 DICOM application supports the presentation contexts listed in the following table for the Storage Commitment Service Class.

Table 19 - Presentation Context Table "Update Flag Information"

Presentation Context Table – "Update Flag Information"					
Abstract Syntax		**Transfer Syntax**		**Role**	**Ext. Neg.**
Name	**UID**	**Name List**	**UID List**		
Storage Commitment Push Model	1.2.840.10008.1.20.1	Explicit VR Little Endian	1.2.840.10008.1.2.1	SCP	None
		Explicit VR Big Endian	1.2.840.10008.1.2.2		
		Implicit VR Little Endian	1.2.840.10008.1.2		

4.2.3.4.1.3 SOP-specific Conformance Statement for Storage Commitment SOP classes

The Storage Commitment SCU provides standard conformance to the Storage Commitment SOP Class.

4.2.4 Query/Retrieve AE Specification

4.2.4.1 SOP Classes

The Query/Retrieve AE provides Standard Conformance to the the SOP Classes listed in “Table 1: Network Services” section "Query/Retrieve” in the “Conformance Statement Overview”.

4.2.4.2 Association Policy

Table 20: Association Policies

Application Context Name	[redacted]
[redacted]	
[redacted]	
[redacted]	

The Somaris/10 contains a limitation of 512 kB for the maximum PDU size. By default, the PDU size is set to 32kB.

The maximum number of simultaneous receiving associations (SCP) is configurable at run time, based on the system resources available. By default, the maximum number of associations is set to 12.

There is no inherent limit to the number of outgoing associations (SCU), other than limits imposed by the computer operating system.

4.2.4.2.1 Asynchronous Nature

The Somaris/10 supports asynchronous communication (multiple outstanding transactions over a single association). On the SCU side the Window size proposed is infinite. On the SCP Side any non-infinite maximum size will be accepted.

Table 21: Asynchronous Nature as an Association Initiator

Maximum number of outstanding asynchronous transactions	10

4.2.4.2.2 Implementation Identifying Information

For Implementation Identifying Information please refer to “Table 3 - Implementation Identifying Information” in the “Conformance Statement Overview”.

4.2.4.3 Association Initiation Policy

4.2.4.3.1 Activity “Querying a Remote Node” for Instances

4.2.4.3.1.1 Description and Sequencing of Activities

The Somaris/10 serves as a SCU for the following SOP Classes

[1] Default, the value is configurable

- Patient Root Q/R Information Model – FIND SOP Class
- Study Root Q/R Information Model – FIND SOP Class
- Patient/Study only Q/R Information Model – FIND SOP Class.

Using the attributes specified by the user as Query Keys (in accordance with the query model) the Query SCU initiates a C-FIND Request and displays the responses to the user.

4.2.4.3.1.2 Proposed Presentation Contexts

The Somaris/10 will propose Presentation Contexts as shown in the following table:

Table 22: Proposed Presentation Contexts for Query

Presentation Context Table					
Abstract Syntax		**Transfer Syntax**		**Role**	**Ext. Neg.**
Name	**UID**	**Name List**	**UID List**		
Patient Root Query/Retrieve Information Model – FIND	1.2.840.10008.5.1.4.1.2.1.1	Implicit VR Little Endian	1.2.840.10008.1.2	SCU	Yes
		Explicit VR Little Endian	1.2.840.10008.1.2.1		
		Explicit VR Big Endian	1.2.840.10008.1.2.2		
Study Root Query/ Retrieve Information Model – FIND	1.2.840.10008.5.1.4.1.2.2.1	Implicit VR Little Endian	1.2.840.10008.1.2	SCU	Yes
		Explicit VR Little Endian	1.2.840.10008.1.2.1		
		Explicit VR Big Endian	1.2.840.10008.1.2.2		
Patient/Study Only Query/ Retrieve Information Model – FIND	1.2.840.10008.5.1.4.1.2.3.1	Implicit VR Little Endian	1.2.840.10008.1.2	SCU	No
		Explicit VR Little Endian	1.2.840.10008.1.2.1		
		Explicit VR Big Endian	1.2.840.10008.1.2.2		

Table 23: Extended Negotiation as an SCU

Name	UID	Extended Negotiation
Patient Root Query/Retrieve Information Model – FIND	1.2.840.10008.5.1.4.1.2.1.1	Relational Query will be negotiated as defined in DICOM PS3.4 2016a.
Study Root Query/ Retrieve Information Model – FIND	1.2.840.10008.5.1.4.1.2.2.1	Relational Query will be negotiated as defined in DICOM PS3.4 2016a.

4.2.4.3.1.3 SOP Specific Conformance Statement to Query SOP classes

The Somaris/10 checks for the following status codes in the Query SCP's C-FIND-Response:

Table 24: DICOM Command Response Status Handling Behavior

Service Status	Further Meaning	Error Code	Behavior
Failure	e.g. Out of Resources; Cancellation; Identifier does not match SOP Class; Unable to process	Any none null Code	Failure reported to user
Pending	All optional keys are supported the same manner as Required Keys.	FF00	Pending state is indicated to user
	Matching Operation continues; some of the optional keys were not supported the same way as the required keys	FF01	Pending state is indicated to user
Success	Query has been performed successfully.	0000	Success reported to user

Table 25: below indicates the behavior if exceptions occur:

Table 25: DICOM Command Communication Failure Behavior

Exception	Behavior
Timeout	Failure reported to user (Timeout configurable; default 30s)
Association Aborted	Failure reported to user

The Somaris/10 supports the following query levels:

- Study
- Series

Matching Keys on Instance Level is not supported by the Somaris/10 as SCU.

The following table lists the various attributes at Study and Series level, which can be used for hierarchical queries as well as return values for display. The display capabilities are highly configurable and "yes" indicates that it is possible to configure display of the data:

Table 26: Attributes supported for Study/Series Query - SCU

Attribute Name	Tag	Type	User input	UI
Study Level				
Patient's Name	(0010,0010)	O	enter value	yes
Patient ID	(0010,0020)	O	enter value	yes
Issuer of Patient ID	(0010,0021)	O	enter value	yes
Patient's Birth Date	(0010,0030)	O	enter value	yes
Patient's Birth Time	(0010,0032)	O	enter value	yes
Patient's Sex	(0010,0040)	O	enter value	yes
Accession Number	(0008,0050)	O	enter value	yes
Study ID	(0020,0010)	O	enter value	yes
Study Instance UID	(0020,000D)	U	enter value	yes
Study Date	(0008,0020)	O	enter value	yes

Attribute Name	Tag	Type	User input	UI
Study Time	(0008,0030)	O	enter value	yes
Referring Physician' s Name	(0008,0090)	O	enter value	yes
Study Description	(0008,1030)	O	enter value	yes
Number of Study related Instances	(0020,1208)	O	-	yes
Modalities in Study	(0008,0061)	O	enter value	yes
Number of Study Related Series	(0020,1206)	O	-	yes
Series Level				
Modality	(0008,0060)	O	enter value	yes
Series Date	(0008,0021)	O	enter value	yes
Series Time	(0008,0031)	O	enter value	yes
Number of Series related Instances	(0020,1209)	O	-	yes
Series Number	(0020,0011)	O	enter value	yes
Series Description	(0008,103E)	O	enter value	yes
Request Attributes Sequence \ Requested Procedure ID	(0040,0275) \ (0040,1001)	O	enter value	yes
Request Attributes Sequence \ Scheduled Procedure Step ID	(0040,0275) \ (0040,0009)	O	enter value	yes
Performed Procedure Step Start Date	(0040,0244)	O	enter value	yes
Performed Procedure Step Start Time	(0040,0245)	O	enter value	yes
Series Instance UID	(0020,000E)	U	-	yes

4.2.4.3.1 Activity “Retrieve Instances from a remote node”

4.2.4.3.1.1 Description and Sequencing of Activities

The Somaris/10 serves as a SCU for the following SOP Classes

- Study Root Q/R Information Model – MOVE SOP Class

The C-MOVE-Request is used to retrieve the selected imaging objects. The Retrieve AE supports the query model Study Root.

4.2.4.3.1.2 Proposed Presentation Contexts

The Somaris/10 proposes Presentation Contexts shown in the following table:

Table 27: Proposed Presentation Contexts for Retrieve and Activity "MOVE SCU"

Presentation Context Table					
Abstract Syntax		Transfer Syntax		Role	Ext. Neg.
Name	UID	Name List	UID List		
Patient Root Query/Retrieve Model – MOVE	1.2.840.10008.5.1.4.1.2.2.1	Implicit VR Little Endian	1.2.840.10008.1.2	SCU	No
		Explicit VR Little Endian	1.2.840.10008.1.2.1		
		Explicit VR Big Endian	1.2.840.10008.1.2.2		
Study Root Query/Retrieve Model – MOVE	1.2.840.10008.5.1.4.1.2.2.2	Implicit VR Little Endian	1.2.840.10008.1.2	SCU	No
		Explicit VR Little Endian	1.2.840.10008.1.2.1		
		Explicit VR Big Endian	1.2.840.10008.1.2.2		
Patient/Study Root Query/Retrieve Model - MOVE	1.2.840.10008.5.1.4.1.2.2.3	Implicit VR Little Endian	1.2.840.10008.1.2	SCU	No
		Explicit VR Little Endian	1.2.840.10008.1.2.1		
		Explicit VR Big Endian	1.2.840.10008.1.2.2		

4.2.4.3.1.3 SOP Specific Conformance Statement for Move SCU Classes

The behavior of Somaris/10 when encountering status codes in a C-MOVE response is summarized in Table 28

Table 28: DICOM Command Response Status Handling Behavior

Service Status	Further Meaning	Error Code	Behavior
Error	e.g. Out of Resources; Cancellation; Identifier does not match SOP Class; Unable to process; Move destination unknown	Any none null Code	Failure reported to user
Pending	Move Operation continues	FF00	Operation continues in background
Success	Move has been performed successfully.	0000	Success reported to user

Table 29 below indicates the behavior if exceptions occur:

Table 29: DICOM Command Communication Failure Behavior

Exception	Behavior
Timeout	Failure reported to user (Timeout configurable; default 30s)
Association Aborted	Failure reported to user

4.2.4.4 Association Acceptance Policy

The Somaris/10 provides SCU and SCP functionality.

4.2.5 Modality Worklist AE Specifation

4.2.5.1 SOP Classes

The Modality Worklist AE provides Standard Conformance to the the SOP Classes listed in “Table 1: Network Services” section “Worklist Management" in the “Conformance Statement Overview”.

4.2.5.2 Association Policy

Table 30: Association Policies

Application Context Name	[redacted]
[redacted]	
[redacted]	
[redacted]	

The Somaris/10 contains a limitation of 512 kB for the maximum PDU size. By default, the PDU size is set to 32kB.

The maximum number of simultaneous receiving associations (SCP) is configurable at run time, based on the system resources available. By default, the maximum number of associations is set to 12.

There is no inherent limit to the number of outgoing associations (SCU), other than limits imposed by the computer operating system.

4.2.5.2.1 Asynchronous Nature

The Somaris/10 supports asynchronous communication (multiple outstanding transactions over a single association). On the SCU side the Window size proposed is infinite. On the SCP Side any non-infinite maximum size will be accepted.

Table 31: Asynchronous Nature as an Association Initiator

Maximum number of outstanding asynchronous transactions	10

4.2.5.2.2 Implementation Identifying Information

For Implementation Identifying Information please refer to “Table 3 - Implementation Identifying Information” in the “Conformance Statement Overview”.

[1] Default, the value is configurable

4.2.5.3 Association Initiation Policy

4.2.5.3.1 Activity "Querying a Remote Node" for Modality Worklist

4.2.5.3.1.1 Description and Sequencing of Activities

The Somaris/10 serves as a SCU of the Modality Worklist service. It performs worklist queries by issueing a C-FIND request at regular intervals. In addition a worklist request can be triggered manually.

4.2.5.3.1.2 Proposed Presentation Contexts

The Somaris/10 will propose Presentation Contexts as shown in the following table:

Table 32: Proposed Presentation Contexts for Worklist

Presentation Context Table					
Abstract Syntax		**Transfer Syntax**		**Role**	**Ext. Neg.**
Name	**UID**	**Name List**	**UID List**		
Modality Worklist-FIND	1.2.840.10008.5.1.4.31	Implicit VR Little Endian	1.2.840.10008.1.2	SCU	No
		Explicit VR Little Endian	1.2.840.10008.1.2.1		
		Explicit VR Big Endian	1.2.840.10008.1.2.2		

4.2.5.3.1.3 SOP Specific Conformance for SOP Classes

Search Key Attributes of the Worklist C-FIND

The Somaris/10 Modality Worklist SCU supports "broad worklist queries" with all required search keys. The following tables describe the "broad query" search keys that the SCU supports. The list is configurable in 'DICOM Modality Worklist Query'.

Table 33: Broad Query search keys

Attribute Name	Tag	Matching Key Type	Query Value
Scheduled Procedure Step			
Scheduled Procedure Step Sequence	(0040,0100)	R	
>Modality	(0008,0060)	R	<configured byModality> or "*"
>Scheduled Station AE Title	(0040,0001)	R	<own AET> or "*"[1]
>Scheduled Procedure Step Start Date	(0040,0002)	R	Range from UI [2]
>Scheduled Station Name	(0040,0010)	O	
>Scheduled Procedure Step Location	(0040,0011)	O	
>Scheduled Procedure Step Status	(0040,0020)	O	
>Scheduled Performing Physician's Name	(0040,0006)	O	

[1] This depends on user configuration (Administration Portal->Technical Configuration->DICOM Nodes->Local DICOM Node->Worklist) if the "own AET" is provided or not.
[2] A time window can be configured by defining how many days to look into the past and into the future (Administration Portal-> Technical Configuration->DICOM Nodes->Local DICOM Node->Worklist)

Attribute Name	Tag	Matching Key Type	Query Value
Requested Procedure Description	(0032,1060)	O	
Requested Procedure Priority	(0040,1003)	O	
Patient Transport Arrangements	(0040,1004)	O	
Requested Procedure Comments	(0040,1400)	O	
Requested Procedure Code Sequence	(0032,1064)	O	
>Code Value	(0008,0100)	O	
Requesting Physician	(0032,1032)	O	
Referring Physicians Name	(0008,0090)	O	
Current Patient Location	(0038,0300)	O	
Pregnancy Status	(0010, 21C0)	O	
Medical Alerts	(0010,2000)	O	
Allergies	(0010,2110)	O	

Return Key Attributes of the Modality Worklist C-FIND

The Somaris/10 Modality Worklist SCU supports worklist queries with return key attributes of all types. The following tables describe the return keys that the SCU supports.

An “yes” in the **UI** column indicates that the attribute may be visualized when browsing the Worklist results with the Browser. The Browser display is additionally influenced by the related Browser configuration.

Table 34: Modality Worklist C-Find Return keys

Attribute Name	Tag	Return Key Type	UI	Notes
SOP Common				
Specific Character Set	(0008,0005)	1C	-	
Scheduled Procedure Step				
Scheduled Procedure Step Sequence	(0040,0100)	1		
>Modality	(0008,0060)	1	yes	
>Scheduled Station AE Title	(0040,0001)	1		“Scheduled Station AE Title” is taken as default for “Performed Station AE Title”
>Scheduled Procedure Step Start Date	(0040,0002)	1	yes	
>Scheduled Procedure Step Start Time	(0040,0003)	1	yes	
>Scheduled Procedure Step End Date	(0040,0004)	3	-	
>Scheduled Procedure Step End Time	(0040,0005)	3	-	
>Scheduled Performing Physician’s Name	(0040,0006)	1	yes	“Scheduled Performing Physician’s Name” is taken as default for “Performing Physician’s Name”
>Scheduled Procedure Step Description	(0040,0007)	1C	yes	“Scheduled Procedure Step Description” is taken as default for “Performed Procedure Step Description”
>Scheduled Protocol Code Sequence **	(0040,0008)	1C	-	Uses universal sequence match “Scheduled Protocol Code Sequence” is taken as default for

Attribute Name	Tag	Return Key Type	UI	Notes
				"Performed Protocol Code Sequence"
>>Code Value	(0008,0100)	1C	-	
>>Coding Scheme Designator	(0008,0102)	1C	-	
>>Coding Scheme Version	(0008,0103)	3	-	
>>Code Meaning	(0008,0104)	3	-	
>>Mapping Resource	(0008,0105)	3	-	
>>Context Group Version	(0008,0106)	3	-	
>>Context Group Local Version	(0008,0107)	3	-	
>>Context Group Extension Flag	(0008,010B)	3	-	
>>Context Group Extension Creator UID	(0008,010D)	3	-	
>>Context Identifier	(0008,010F)	3	-	
>Scheduled Procedure Step ID	(0040,0009)	1	yes	"Scheduled Procedure Step ID" is taken as default for "Performed Procedure Step ID"
>Scheduled Station Name	(0040,0010)	2	yes	
>Scheduled Procedure Step Location	(0040,0011)	2	-	"Scheduled Procedure Step Location" is taken as default for "Performed Location"
>Scheduled Procedure Step Status	(0040,0020)	3	-	
>Comments on the Scheduled Procedure Step	(0040,0400)	3	-	
Requested Procedure				
Study Date	(0008,0020)	3	-	
Study Time	(0008,0030)	3	-	
Referenced Study Sequence	(0008,1110)	2	-	Uses universal sequence match
>Referenced SOP Class UID	(0008,1150)	1C	-	
>Referenced SOP Instance UID	(0008,1155)	1C	-	
Study Instance UID	(0020,000D)	1	-	
Requested Procedure Description	(0032,1060)	1C	yes	
Requested Procedure Code Sequence	(0032,1064)	1C	-	Uses universal sequence match "Requested Procedure Code Sequence" is taken as default for "Procedure Code Sequence"
>Code Value	(0008,0100)	1C	-	
>Coding Scheme Designator	(0008,0102)	1C	-	
>Coding Scheme Version	(0008,0103)	3	-	
>Code Meaning	(0008,0104)	3	-	
>>Mapping Resource	(0008,0105)	3	-	
>>Context Group Version	(0008,0106)	3	-	
>>Context Group Local Version	(0008,0107)	3	-	
>>Context Group Extension Flag	(0008,010B)	3	-	
>>Context Group Extension Creator UID	(0008,010D)	3	-	
>>Context Identifier	(0008,010F)	3	-	
Requested Procedure ID	(0040,1001)	1	yes	"Requested Procedure ID" is taken as default for "Study ID"
Reason for the Requested Procedure	(0040,1002)	3	-	
Requested Procedure Priority	(0040,1003)	2	yes	
Patient Transport Arrangements	(0040,1004)	2	-	

Attribute Name	Tag	Return Key Type	UI	Notes
Confidentiality Code	(0040,1008)	3	-	
Reporting Priority	(0040,1009)	3	yes	
Names of intended Recipients of Results	(0040,1010)	3	-	
Requested Procedure Comments	(0040,1400)	3	-	
Imaging Service Request				
Accession Number	(0008,0050)	2	yes	
Referring Physician's Name	(0008,0090)	2	yes	
Requesting Physician	(0032,1032)	2	yes	
Requesting Service	(0032,1033)	3	-	
Issuing Date of Imaging Service Request	(0040,2004)	3	-	
Issuing Time of Imaging Service Request	(0040,2005)	3	-	
Placer Order Number / Imaging Service Request	(0040,2016)	3	-	Old tag (0040,2006) is retired and not used.
Filler Order Number / Imaging Service Request	(0040,2017)	3	-	Old tag (0040,2007) is retired and not used.
Order entered by …	(0040,2008)	3	-	
Order Enterer's location	(0040,2009)	3	-	
Order Callback Phone Number	(0040,2010)	3	-	
Imaging Service Request Comments	(0040,2400)	3	-	
Visit Identification				
Admission ID	(0038,0010)	2	yes	
Issuer of Admission ID	(0038,0011)	3	-	
Institution Name	(0008,0080)	3	-	
Institution Address	(0008,0081)	3	-	
Visit Status				
Current Patient Location	(0038,0300)	2	yes	
Visit Admission				
Admitting Diagnosis Description	(0008,1080)	3	yes	
Admitting Date	(0038,0020)	3	-	
Patient Identification				
Patient's Name	(0010,0010)	1	yes	
Patient ID	(0010,0020)	1	yes	
Issuer of Patient ID	(0010,0021)	3	-	
Other Patient IDs	(0010,1000)	3	yes	
Other Patient Names	(0010,1001)	3	yes	
Patient's Birth Name	(0010,1005)	3	-	
Patient Demographic				
Patient's Birth Date	(0010,0030)	2	yes	
Patient's Birth Time	(0010,0032)	3	-	
Patient's Sex	(0010,0040)	2	yes	
Patient's Insurance Plan Code Sequence	(0010,0050)	3	-	Uses universal sequence match
>Code Value	(0008,0100)	1C	-	
>Coding Scheme Designator	(0008,0102)	1C	-	
>Coding Scheme Version	(0008,0103)	3	-	
>Code Meaning	(0008,0104)	3	-	
Patient's Age	(0010,1010)	3	-	
Patient's Size	(0010,1020)	3	yes	
Patient's Weight	(0010,1030)	2	yes	
Patient's Address	(0010,1040)	3	yes	
Military Rank	(0010,1080)	3	yes	
Branch of Service	(0010,1081)	3	-	

Attribute Name	Tag	Return Key Type	UI	Notes
Ethnic Group	(0010,2160)	3	yes	
Patient Comments	(0010,4000)	3	yes	
Patient Medical				
Medical Alerts	(0010,2000)	2	yes	
Allergies	(0010,2110)	2	yes	
Pregnancy Status	(0010,21C0)	2	yes	
Smoking Status	(0010,21A0)	3	yes	
Last Menstrual Date	(0010,21D0)	3	yes	
Additional Patient History	(0010,21B0)	3	yes	
Special Needs	(0038,0050)	2	yes	

The behavior of the Somaris/10 when encountering status codes in a C-FIND response is summarized in Table 35:

Table 35: DICOM Command Response Status Handling Behavior

Service Status	Further Meaning	Error Code	Behavior
Error	e.g. Out of Resources; Cancellation; Identifier does not match SOP Class; Unable to process	Any none null Code	Failure reported to user
Pending	All optional keys are supported the same manner as Required Keys.	FF00	Pending state is indicated to user
	Matching Operation continues; some of the optional keys were not supported the same way as the required keys	FF01	Pending state is indicated to user
Success	Query has been performed successfully.	0000	Success reported to user

Table 36 below indicates the behavior if exceptions occur:

Table 36: DICOM Command Communication Failure Behavior

Exception	Behavior
Timeout	Failure reported to user (Timeout configurable; default 30s)
Association Aborted	Failure reported to user

4.2.5.4 Association Acceptance Policy

The Somaris/10 does not provide the functionality of a SCP of the Modality Worklist – Find SOP Class.

4.2.6 Modality Performed Procedure Step AE Specification

4.2.6.1 SOP Classes

The Modality Performed Procedure Step AE provides Standard Conformance to the the SOP Classes listed in “Table 1: Network Services” section “Worklist Management" in the “Conformance Statement Overview”.

4.2.6.2 Association Policy

Table 37: Association Policies

Application Context Name	1.2.840.10008.3.1.1.1
PDU size	32 kB [1]
Maximum number of simultaneous associations as an association acceptor	12[1]
Maximum number of simultaneous associations as an association initiator	unlimited

The Somaris/10 contains a limitation of 512 kB for the maximum PDU size. By default, the PDU size is set to 32kB.

The maximum number of simultaneous receiving associations (SCP) is configurable at run time, based on the system resources available. By default, the maximum number of associations is set to 12.

There is no inherent limit to the number of outgoing associations (SCU), other than limits imposed by the computer operating system.

4.2.6.2.1 Asynchronous Nature

The Somaris/10 supports asynchronous communication (multiple outstanding transactions over a single association). On the SCU side the Window size proposed is infinite. On the SCP Side any non-infinite maximum size will be accepted.

Table 38: Asynchronous Nature as an Association Initiator

Maximum number of outstanding asynchronous transactions	10

4.2.6.2.2 Implementation Identifying Information

For Implementation Identifying Information please refer to “Table 3 - Implementation Identifying Information” in the “Conformance Statement Overview”.

4.2.6.3 Association Initiation Policy

4.2.6.3.1 Activity “Create Modality Performed Procedure Step”

4.2.6.3.1.1 Description and Sequencing of Activities

The Somaris/10 serves as a SCU of the Modality Performed Procedure Step SOP Class. It sends N-CREATE request to inform the Information System that a Procedure Step has been started.

4.2.6.3.1.2 Accepted Presentation Contexts

The Somaris/10 proposes Presentation Contexts as shown in the following table:

Table 39: Acceptable Presentation Contexts Activity “Create MPPS”

Presentation Context Table

[1] Default, the value is configurable

Abstract Syntax		Transfer Syntax		Role	Ext. Neg.
Name	UID	Name List	UID List		
Modality Performed Procedure Step	1.2.840.10008.3.1.2.3.3	Implicit VR Little Endian	1.2.840.10008.1.2	SCU	None
		Explicit VR Little Endian	1.2.840.10008.1.2.1		
		Explicit VR Big Endian	1.2.840.10008.1.2.2		

4.2.6.3.1.3 SOP specific Conformance for MPPS SOP class

The behavior of Somaris/10 when encountering status codes in an N-CREATE-RSP response is summarized in Table 40:

Table 40: MPPS N-CREATE Response Status Handling Behavior

Service Status	Further Meaning	Error Code	Behavior
Error	MPPS creation request could not be processed.	Any none null Code	MPPS is not created.
Success	MPPS creation request processed successfully.	0000	MPPS is created.

4.2.6.3.2 Activity “Update Modality Performed Procedure Step”

4.2.6.3.2.1 Description and Sequencing of Activities

When the procedure step has been finished, the Somaris/10 sends N-SET request to inform the Information System about the finalization of the procedure step (COMPLETED or DISCONTINUED).

4.2.6.3.2.2 Proposed Presentation Contexts

The Somaris/10 proposes Presentation Contexts as shown in the following table:

Table 41: Acceptable Presentation Contexts Activity “Update MPPS”

Presentation Context Table					
Abstract Syntax		Transfer Syntax		Role	Ext. Neg.
Name	UID	Name List	UID List		
Modality Performed Procedure Step	1.2.840.10008.3.1.2.3.3	Implicit VR Little Endian	1.2.840.10008.1.2	SCU	None
		Explicit VR Little Endian	1.2.840.10008.1.2.1		
		Explicit VR Big Endian	1.2.840.10008.1.2.2		

4.2.6.3.2.3 SOP specific Conformance for MPPS SOP class

The behavior of when encountering status codes in an N-SET-RSP response is summarized in Table 42:

Table 42: MPPS N-SET Response Status Handling Behavior

Service Status	Further Meaning	Error Code	Behavior
Error	MPPS update request could not be processed.	Any none null Code	MPPS is not updated.
Success	MPPS update request could processed successfully.	0000	MPPS is updated.

4.2.6.4 Association Acceptance Policy

The Somaris/10 does not provide the functionality of a SCP of the Modality Performed Procedure Step SOP Class.

4.2.7 Print AE Specification

4.2.7.1 SOP Classes

The Print AE provides Standard Conformance to the the SOP Classes listed in “Table 1: Network Services” section “Print Management" in the “Conformance Statement Overview”.

4.2.7.2 Association Policy

Table 43: Association Policies

Application Context Name	1.2.840.10008.3.1.1.1
PDU size	32 kB [1]
Maximum number of simultaneous associations as an association acceptor	12[1]
Maximum number of simultaneous associations as an association initiator	unlimited

The Somaris/10 contains a limitation of 512 kB for the maximum PDU size. By default, the PDU size is set to 32kB.

The maximum number of simultaneous receiving associations (SCP) is configurable at run time, based on the system resources available. By default, the maximum number of associations is set to 12.

There is no inherent limit to the number of outgoing associations (SCU), other than limits imposed by the computer operating system.

4.2.7.2.1 Asynchronous Nature

The Somaris/10 supports asynchronous communication (multiple outstanding transactions over a single association). On the SCU side the Window size proposed is infinite. On the SCP Side any non-infinite maximum size will be accepted.

Table 44: Asynchronous Nature as an Association Initiator

Maximum number of outstanding asynchronous transactions	10

4.2.7.3 Association Initiation Policy

4.2.7.3.1 Activity Print Film

4.2.7.3.1.1 Description and Sequencing of Activities

Whenever a film-sheet is prepared by the user, it is forwarded to the Printer Job queue. As soon as the associated Printer device is available the job is activated and an association is established.

[1] Default, the value is configurable

After he film sheet is internally processed, converted to a Standard/1,1 layout and the page image is sent to the printer, the status is controlled by awaiting any N-EVENT-REPORT message throughout the transfer until the last image or film-sheet is sent.

If the response from the remote application contains a status other than Success or Warning the printing is stopped and the job status is set to Aborted.

4.2.7.3.1.2 Proposed Presentation Context

The Somaris/10 proposes Presentation Contexts as shown in the following table:

Table 45: Presentation Contexts for the Activity "Print Film"

Presentation Context Table					
Abstract Syntax		**Transfer Syntax**		**Role**	**Ext. Neg.**
Name	**UID**	**Name List**	**UID List**		
Basic Grayscale Print Management Meta SOP Class	1.2.840.10008.5.1.1.9	Implicit VR Little Endian	1.2.840.10008.1.2	SCU	None
Basic Color Print Management Meta SOP Class	1.2.840.10008.5.1.1.18	Implicit VR Little Endian	1.2.840.10008.1.2	SCU	None
Basic Film Sesssion SOP Class	1.2.840.10008.5.1.1.1	Implicit VR Little Endian	1.2.840.10008.1.2	SCU	None
Basic Film Box SOP Class	1.2.840.10008.5.1.1.2	Implicit VR Little Endian	1.2.840.10008.1.2	SCU	None
Basic Grayscale Image Box SOP Class	1.2.840.10008.5.1.1.4	Implicit VR Little Endian	1.2.840.10008.1.2	SCU	None
Basic Color Image Box SOP SOP Class	1.2.840.10008.5.1.1.4.1	Implicit VR Little Endian	1.2.840.10008.1.2	SCU	None
Printer SOP Class	1.2.840.10008.5.1.1.16	Implicit VR Little Endian	1.2.840.10008.1.2	SCU	None
Print Job SOP Class	1.2.840.10008.5.1.1.14	Implicit VR Little Endian	1.2.840.10008.1.2	SCU	None
Presentation LUT SOP Class	1.2.840.10008.5.1.1.23	Implicit VR Little Endian	1.2.840.10008.1.2	SCU	None

4.2.7.3.1.3 SOP Specific Conformance

The Somaris/10 Print SCU conforms to the DICOM Basic Grayscale Print Management Meta SOP Class and the Basic Color Print Management Meta SOP Class.

The application uses a configuration platform to define the properties of the connected DICOM SCP, e.g.:

- supported film sizes of the connected DICOM SCP
- supported film formats of the DICOM SCP

The printing is only suspended in the case of a failure return status of the SCP.

Basic Film Session SOP Class

The Basic Film Session information object definition describes all the user-defined parameters, which are common for all the films of a film session. The Basic Film Session refers to one or more Basic Film Boxes that are printed on one hardcopy printer.

The Somaris/10 Print Management SCU supports the following DIMSE Service elements for the Basic Film Session SOP Class as SCU:

- N-CREATE
- N-DELETE

The Basic Film Session SOP Class N-CREATE-RQ (SCU) uses the attributes listed in the table below:

Table 46: Attributes for the N-CREATE-RQ of the Basic Film Session

Attribute Name	Tag	Usage SCU	Supported Values
Number of Copies	(2000,0010)	U	1
Medium Type	(2000,0030)	U	BLUE FILM
			CLEAR FILM
			PAPER
			MAMMO BLUE FILM
			MAMMO CLEAR FILM

The Affected SOP Instance UID received with N-CREATE-RSP message will be kept internally and used for later requests (e.g. N-DELETE-RQ) on the Basic Film Session.

The Basic Film Session SOP class interprets the status codes (from N-CREATE-RSP messages) listed in the table below:

Table 47: N-CREATE-RSP Status Handling Behavior for the Basic Film Session

Service Status	Further Meaning	Error Codes	Behavior
Warning	Memory Allocation not supported	B600	Print job continues, warning is logged
Success	Film session successfully created	0000	Print job continues

The N-DELETE-RQ on the Basic Film Session SOP Class is used to remove the complete Basic Film Session SOP Instance hierarchy.

Basic Film Box SOP Class

The Basic Film Box information object definition describes all user-defined parameters of one film of the film session including presentation parameters, which are common for all images on a given film sheet.

The Basic Film Box refers to one or more Image Boxes.

The Somaris/10 rint Management SCU supports the following DIMSE Service elements for the Basic Film Box SOP Class as SCU:

- N-CREATE
- N-ACTION
- N-DELETE

The Basic Film Box SOP Class N-CREATE-RQ message uses the attributes listed below. The actual values for each attribute depend on DICOM printer configuration within the Somaris/10 DICOM Print Management SCU:

Table 48: Attributes for the N-CREATE-RQ of the Basic Film Session

Attribute Name	Tag	Usage SCU	Supported Values
Image Display Format	(2010,0010)	M	STANDARD\1,1
Referenced Film Session Sequence	(2010,0500)	M	
> Referenced SOP Class UID	(0008,1150)	M	1.2.840.10008.5.1.1.1
> Referenced SOP Instance UID	(0008,1155)	M	
Film Orientation	(2010,0040)	M	PORTRAIT, LANDSCAPE
Film Size ID	(2010,0050)	M	8INX10IN, 10INX12IN, 10INX14IN, 11INX14IN, 14INX14IN, 14INX17IN, 24CMX24CM, 24CMX30CM
Magnification Type	(2010,0060)	M	BILINEAR, CUBIC, NONE, REPLI-CATE
Border Density	(2010,0100)	U	BLACK, WHITE
Max Density	(2010,0130)	U	0 < Value
Min Density	(2010,0120)	U	0 < Value < 50
Required if Presentation LUT is present			
Reflective Ambient Light	(2010,0160)	U	0 < Value
Illumination	(2010,015E)	U	0 < Value
Referenced Presentation LUT Sequence	(2050,0500)	U	

For Page Mode printing, the Image Display format used is Standard\1,1.

The N-CREATE-RSP message from the Print SCP includes the Referenced Image Box Sequence with SOP Class/Instance UID pairs which will be kept internally to be further used for the subsequent Basic Image Box SOP Class N-SET-RQ messages.

When all Image Boxes (including parameters) for the film-sheet have been set, the print manager will issue an N-ACTION-RQ message with the SOP Instance UID of the Basic Film Box and the Action Type ID of 1.

The affected SOP Instance UID received with N-CREATE-RSP message will be kept internally and used for later requests (e.g. N-DELETE-RQ) on the Basic Film Box.

The Basic Film Box SOP class interprets the status codes listed in the tables below:

Table 49: N-CREATE-RSP Status Handling Behavior for Basic Film Box

Service Status	Meaning	Error Codes	Behavior
Failure	There is an existing Film Box that has not been printed and N-ACTION at the Film Session level is not supported. A new Film Box will not be created when a previous Film Box has not been printed	C616	Print job is marked as failed and the reason is logged
Warning	Requested Min Density or Max Density outside of printer's operating range. The printer will use its respective minimum or maximum density value instead	B605	Print job continues and warning is logged
Success	Film Box successfully created	0000	Print job continues

Table 50: N-ACTION-RSP Status Handling Behavior for Basic Film Box

Service Status	Meaning	Error Codes	Behavior
Failure	Unable to create print job, print queue is full	C602	Print job is marked as failed and the reason is logged
	Image size is larger than images box size	C603	Print job is marked as failed and the reason is logged
	Combined Print Image size is larger than the Image Box size	C613	Print job is marked as failed and the reason is logged
Warning	Film box does not contain image box (empty page)	B603	Print job continues and warning is logged
	Image size is larger than image box size, the image has been demagnified	B604	Print job continues and warning is logged
	Image size is larger than the Image Box size. The Image has been cropped to fit.	B609	Print job continues and warning is logged
	Image size or Combined Print Image size is larger than the Image Box size. Image or Combined Print Image has been decimated to fit.	B60A	Print job continues and warning is logged
Success	Film accepted for printing	0000	Print job continues

Basic Grayscale Image Box SOP Class

The Basic Grayscale Image Box information object definition is the presentation of an image and image related data in the image area of a film. The Basic Image Box information describes the presentation parameters and image pixel data, which apply to a single image of a sheet of film.

The Grayscale Image Box SOP Class uses only the N-SET-RQ with the attributes listed in the table below:

Table 51: Attributes for N-SET-RQ of Basic Grayscale Image Box

Attribute Name	Tag	Usage SCU	Supported Values
Image Position	(2020,0010)	M	1
Basic Grayscale Image Sequence	(2020,0110)	M	
> Samples per Pixel	(0028,0002)	M	1
> Photometric Interpretation	(0028,0004)	M	MONOCHROME2
> Rows	(0028,0010)	M	
> Columns	(0028,0011)	M	
> Pixel Aspect Ratio	(0028,0034)	M	
> Bits Allocated	(0028,0100)	M	8,16
> Bits Stored	(0028,0101)	M	8,12
> High Bit	(0028,0102)	M	7,11
> Pixel Representation	(0028,0103)	M	0
> Pixel Data	(7FE0,0010)	M	

The Basic Grayscale Image Box SOP class interprets the status codes as listed below:

Table 52: N-SET-RSP Status Handling Behavior for the Basic Grayscale Image Box SOP Class

Service Status	Further Meaning	Error Codes	Behavior
Failure	Image contains more pixel than printer can print in Image Box	C603	Print job is marked as failed and the reason is logged
	Insufficient memory in printer to store the image	C605	Print job is marked as failed and the reason is logged
	Combined Print Image size is larger than the Image Box size	C613	Print job is marked as failed and the reason is logged
Warning	Image size is larger than image box size, the image has been demagnified.	B604	Print job continues and the reason is logged
	Requested MinDensity or MaxDensity outside of Printer's operating range	B605	Print job continues and the reason is logged
	Image size is larger than the Image Box size. The Image has been cropped to fit.	B609	Print job continues and warning is logged
	Image size or Combined Print Image size is larger than the Image Box size. Image or Combined Print Image has been decimated to fit.	B60A	Print job continues and warning is logged
Success	Image successfully stored in Image Box	0000	Print job continues

Basic Color Image Box SOP Class

The Basic Color Image Box information object definition is the presentation of an image and image related data in the image area of a film. The Basic Image Box information describes the presentation parameters and image pixel data, which apply to a single image of a sheet of film.

The Color Image Box SOP Class uses only the N-SET-RQ with the attributes listed below:

Table 53: Attributes for N-SET-RQ of Basic Color Image Box

Attribute Name	Tag	Usage SCU	Supported Values
Image Position	(2020,0010)	M	1
BASIC Color Image Sequence	(2020,0111)	M	
> Samples per Pixel	(0028,0002)	M	3
> Photometric Interpretation	(0028,0004)	M	RGB
> Planar Configuration	(0028,0006)	M	0
> Rows	(0028,0010)	M	
> Columns	(0028,0011)	M	
> Pixel Aspect Ratio	(0028,0034)	M	
> Bits Allocated	(0028,0100)	M	8
> Bits Stored	(0028,0101)	M	8
> High Bit	(0028,0102)	M	7
> Pixel Representation	(0028,0103)	M	0
> Pixel Data	(7FE0,0010)	M	

The Color Image Box SOP class interprets the status codes listed below:

Table 54: N-SET-RSP Status Handling Behavior for the Color Grayscale Image Box

Service Status	Meaning	Error Codes	Behavior
Failure	Image contains more pixel than printer can print in Image Box	C603	Print job is marked as failed and the reason is logged
	Insufficient memory in printer to store the image	C605	Print job is marked as failed and the reason is logged
	Combined Print Image size is larger than the Image Box size	C613	Print job is marked as failed and the reason is logged
Warning	Image size larger than image box size	B604	Print job continues and the reason is logged
	Image size is larger than the Image Box size. The Image has been cropped to fit.	B609	Print job continues and warning is logged
	Image size or Combined Print Image size is larger than the Image Box size. Image or Combined Print Image has been decimated to fit.	B60A	Print job continues and warning is logged
Success	Image successfully stored in Image Box	0000	Print job continues

Presentation LUT SOP Class

The objective of the Presentation LUT is to realize image hardcopy printing tailored for specific modalities, applications and user preferences.

The output of the Presentation LUT is Presentation Values (P-Values). P-Values are approximately related to human perceptual response. They are intended to facilitate common input for hardcopy. P-Values are intended to be independent of the specific class or characteristics of the hardcopy device.

The Somaris/10 Print Management SCU supports the following DIMSE Service elements for the Basic Film Session SOP Class as SCU:

- N-CREATE
- N-DELETE

The Presentation LUT SOP Class uses only the N-CREATE-RQ with the attributes listed below:

Table 55: Attributes for N-CREATE-RQ of Presentation LUT SOP Class

Attribute Name	Tag	Usage SCU	Supported Values
Presentation LUT Shape	(2050,0020)	U	IDENTITY

The affected SOP Instance UID received with N-CREATE-RSP message will be kept internally and is used for later requests on the Basic Film Box (N-CREATE-RQ) and on the Presentation LUT (N-DELETE-RQ).

The Presentation LUT SOP class interprets the status codes listed below:

Table 56: N-CREATE-RSP Status Handling Behavior for the Presentation LUT SOP Class

Service Status	Further Meaning	Error Codes	Behavior
Warning	Requested MinDensity or MaxDensity outside of HCD's operating range. HCD will use its respective minimum or maximum density value instead.	B605	Print job continues and the reason is logged
Success	Presentation LUT successfully created	0000	Print job continues

Printer SOP Class

The Printer SOP Class provides the possibility to monitor the status of the hardcopy printer in a synchronous and in an asynchronous way.

When used synchronously the Somaris/10 Print SCU uses the N-GET-RQ to request information about the printer status. It uses the attributes listed in the table below.

Table 57: Attributes for N-GET-RQ of the Printer SOP Class

Attribute Name	Tag	Usage SCP	Supported Values
Printer Status	(2110,0010)	M	NORMAL, FAILURE, WARNING
Printer Status Info	(2110,0020)	M	See table in chapter 0 for possible values.

The command communication failure behavior listed below applies to all SOP classes used for the "Print Film" activity:

Table 58: DICOM Command Communication Failure Behavior

Exception	Behavior
Timeout	Failure reported to user (Timeout configurable; default 30s)
Association Aborted	Failure reported to user

4.2.7.4 Association Acceptance Policy

4.2.7.4.1 Activity Print Film

4.2.7.4.1.1 Description and Sequencing of Activities

The Somaris/10 supports the reverse role negotiation of the Printer SOP Class. Receiving the N-EVENT-REPORT-RQ from a printer the Somaris/10 is asynchronously informed about changes of the printer status.

4.2.7.4.1.2 Accepted Presentation Context

The Somaris/10 accepts Presentation Contexts as shown in the following table:

Table 59: Presentation Contexts for the Activity "Print Film"

Presentation Context Table					
Abstract Syntax		**Transfer Syntax**		**Role**	**Ext. Neg.**
Name	**UID**	**Name List**	**UID List**		
Printer SOP Class	1.2.840.10008.5.1.1.16	Implicit VR Little Endian	1.2.840.10008.1.2	SCU	None

4.2.7.4.1.3 SOP Specific Conformance

The arguments of the N-EVENT-REPORT-RQ are defined in the table below:

Table 60: Attributes for the N-EVENT-REPORT-RQ of the Printer SOP Class

Event-type Name	Event	Attributes	Tag	Usage SCU
Normal	1	-	-	-
Warning	2	Printer Status Info	(2110,0020)	U
Failure	3	Printer Status Info	(2110,0020)	U

4.2.7.4.2 Activity Print Management

4.2.7.4.2.1 Description and Sequencing of Activities

The Somaris/10 supports the reverse role negotiation of the Print Job SOP Class. Receiving the N-EVENT-REPORT-RQ from a printer the Somaris/10 is asynchronously informed about the status of a print job for monitoring its progress.
Accepted Presentation Context

4.2.7.4.2.2 Accepted Presentation Context

The Somaris/10 accepts Presentation Contexts as shown in the following table:

Table 61: Presentation Contexts for the Activity "Print Management"

Presentation Context Table					
Abstract Syntax		**Transfer Syntax**		**Role**	**Ext. Neg.**
Name	**UID**	**Name List**	**UID List**		
Print Job SOP Class	1.2.840.10008.5.1.1.14	Implicit VR Little Endian	1.2.840.10008.1.2	SCU	None

4.2.7.4.2.3 SOP Specific Conformance

Attributes that can be handled by the Print AE of the product are listed in the table below.

Table 62: Attributes for the N-EVENT-REPORT-RQ of the Print Job SOP Class

Event-type Name	Event	Attributes	Tag	Usage SCU
Pending	1	Execution Status Info	(2100,0030)	U
		Print Job ID	(2100,0010)	-- (Print Queue Management SOP Class not supported)
		Film Session Label	(2000,0050)	U
		Printer Name	(2110,0030)	U
Printing	2	Execution Status Info	(2100,0030)	U
		Print Job ID	(2100,0010)	-- (Print Queue Management SOP Class not supported)
		Film Session Label	(2000,0050)	U
		Printer Name	(2110,0030)	U
Done	3	Execution Status Info	(2100,0030)	U
		Print Job ID	(2100,0010)	-- (Print Queue Management SOP Class not supported)
		Film Session Label	(2000,0050)	U
		Printer Name	(2110,0030)	U
Failure	4	Execution Status Info	(2100,0030)	U
		Print Job ID	(2100,0010)	-- (Print Queue Management SOP Class not supported)
		Film Session Label	(2000,0050)	U
		Printer Name	(2110,0030)	U

4.3 Network Interfaces

4.3.1 Physical Network Interface

The Somaris/10 provides DICOM 3.0 TCP/IP network communication support as defined in Part 8 of the DICOM Standard. The network communication is independent from the physical medium over which TCP/IP executes; it inherits this from the Windows OS system upon which it executes.

4.3.2 Additional Protocols

none

4.3.3 IPv4 and IPv6 Support

IPv4 and IPv6 are supported. Regarding IPv6 please note, that the complete networking infrastructure in the hospital (firewalls, DNS-Servers, …) must support IPv6 to get a functioning communication.

4.4 Configuration

4.4.1 AE Title/Presentation Address Mapping

AE Titles shall be unique within the hospital. A common way to achieve that is to use the hostname as part of the AE Titles. The string can be up to 16 characters and must not contain any extended characters. Only 7-bit ASCII characters (excluding Control Characters) are allowed according to the DICOM 2016a Standard.

4.4.1.1 Local AE Titles

The Somaris/10 allows to configure AETitles, Ports and Services in any wished way. Default delivery is that all services are using the same AE title and only one port number. In case the connected systems cannot handle this default, the customer service engineer is able to configure for each service its own AE title and Port number.

Parameter	Configurable	Default Value
Default AE title	[redacted]	
[redacted]		
[redacted]		

4.4.1.2 Remote AE Title/Presentation Address Mapping

4.4.1.2.1 Remote Association Initiators

All relevant remote applications that may setup DICOM associations towards Somaris/10 need to be configured in Somaris/10, before the association can be established. This behavior is configurable, but it is recommended, not to change this behavior.

The mapping of external AE Titles to TCP/IP addresses and ports is configurable and initially set at the time of installation by Installation Personnel. Changes can later on also be performed by the local system administrator. The Application Entity Titles and supported transfer syntaxes need to be known for configuration.

To enable a fast and efficient configuration possibility Siemens will deliver templates for known configuration examples, so that the behavior (usage of one AE title, default port numbers, supported services) is determined already through the template.

Remote Application Entities can be configured without restarting the process.

4.4.1.2.2 Remote Association Acceptors

For remote applications that shall be able to accept DICOM associations from Somaris/10, the following information needs to be available:

- Application Entity Title
- Host Name / IP address on which the remote application service runs
- Port number on which the remote application accepts association requests.

The remote system will be indicated in the UI of Somaris/10 with a logical name, that is also entered when configuring the node in the administration UI.

To enable a fast and efficient configuration possibility Siemens will deliver templates for known configuration examples, so that the behavior (usage of one AE title, default port numbers, supported services) is determined already through the template.

Remote Application Entities can be configured without restarting the process.

4.4.1.3 Secure DICOM Communication

The system supports configuring the DICOM communication to use secure channel (TLS) between Somaris/10 and configured remote nodes. As a security measure the certificate thumbprint or certificate trust chain of the remote nodes shall be added (pinned) to the Somaris/10 system to authorize the incoming connection.

Detailed instructions how to set up secure DICOM communication are available in the Administrator Online Help.

Note: The default DICOM port will change to 2762.

If the certificate of remote node contains Enhanced Key Usage (Extended Key Usage) field, then:

- If the remote node acts as DICOM SCP it shall contain Server Authentication (1.3.6.1.5.5.7.3.1)
- If the remote node acts as a DICOM SCU it shall contain Client Authentication (1.3.6.1.5.5.7.3.2)

Otherwise Somaris/10 will not accept the certificate.

4.4.2 Parameters

The next table lists configuration parameters, which are true for all Application Entities.

Table 63: Parameter List

Parameter	Configurable	Default Value
PDU size	Yes	32768 Bytes
time-out for accepting/rejecting an association request	Yes	30 s
time-out for responding to an association open/close request	Yes	30 s
time-out for accepting a message over network	Yes	30 s
time-out for waiting for data between TCP/IP-packets	Yes	5 s
time-outs for waiting for a Service Request/Response message from the remote node (Storage SCP/SCU)	Yes	30 s
time-outs for waiting for a Service Request/Response message from the remote node (Query/Retrieve SCP/SCU)	Yes	30 s
time-out for waiting for a C-MOVE-RSP	No	1200 s
number of image collection before saving to database	Yes	20
max matches query limit	Yes	100
max number of parallel receiving associations	Yes	12

5 Media Interchange

5.1 Implementation Model

5.1.1 Application Data Flow Diagram

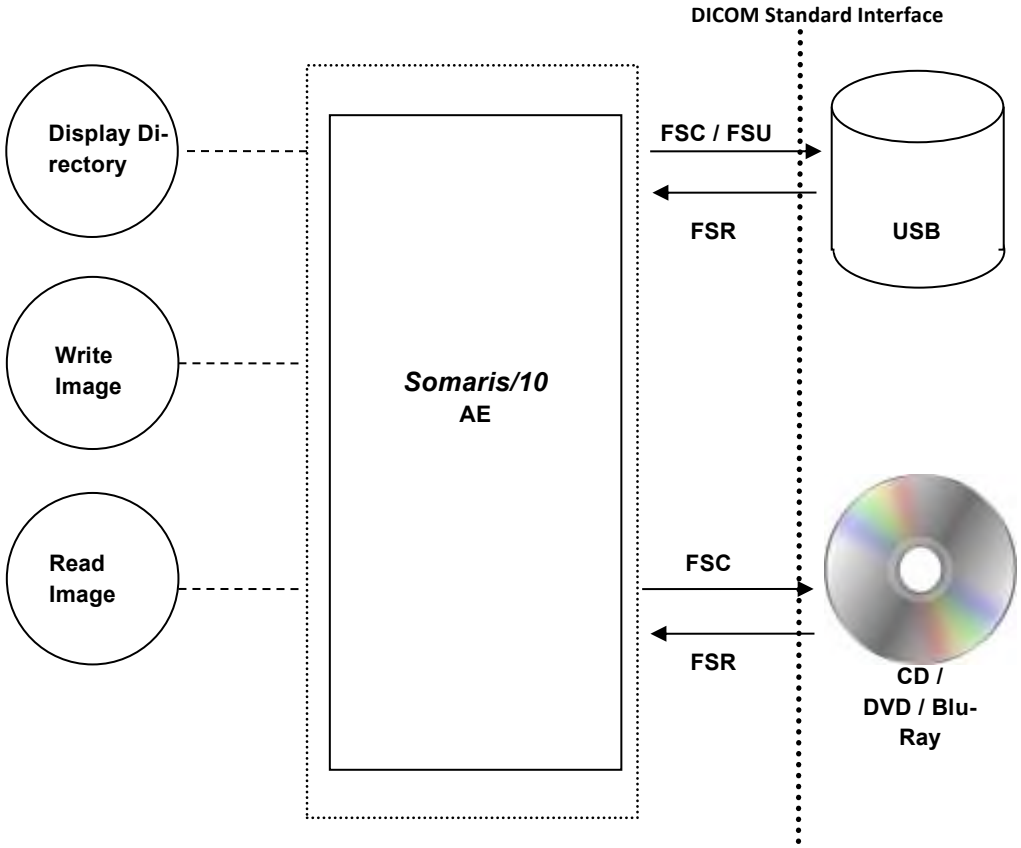

Figure 6: Media Interchange Application Data Flow Diagram

The Somaris/10 provides the functionality to Import or Export DICOM Instances from and to the File System. During export, a DICOMDIR may also be generated (user selection). A complete ISO Image ready-to-burn can also be generated. All SOP Classes defined in Table 1are supported for the Import/Export functionality.

5.1.2 Functional definitions of AEs

The Somaris/10 application is capable of

- creating a new File-set in the File System (Export to ...)
- importing SOP Instances from the medium onto local storage
- writing the File-sets DICOMDIR information into the file system and joining it to an ISO image.

5.1.3 Sequencing of Real-World Activities

Whenever data is written to an external media, Somaris/10 creates a DICOMDIR from the selected data and creates an ISO image of the selected data on the local hard disk. Depending on the selected data and options (selected media size, with or without compression) either General Purpose CD profile, DVD-J2K, BD-J2K profile is used.

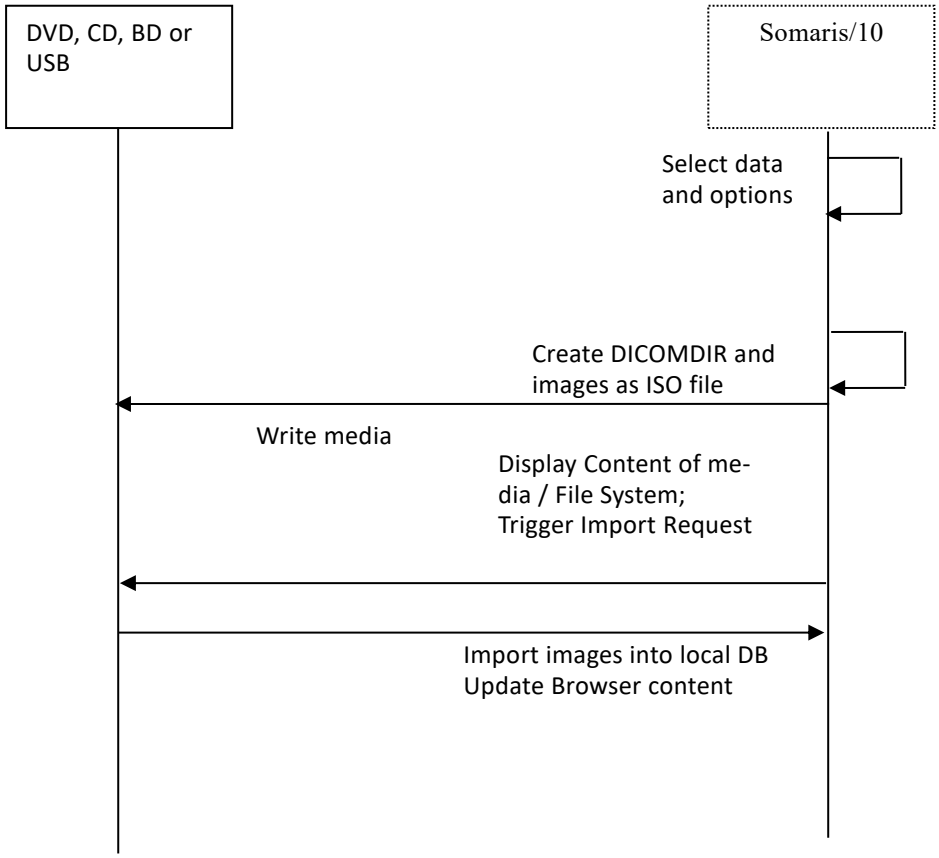

Figure 7: Sequence diagram – Media creation

5.1.4 File Meta Information for Implementation Class and Version

This section describes the values assigned to the File Meta Information attributes (see part PS 3.10) that pertain to the Implementation Class and Version. The implementation Class UID and the Implementation Version name in the File Meta Header are the same as the values specified for networking.

Table 64: Implementation Class/Version Name - Media Interchange

File Meta Information Version	[redacted]
[redacted]	
[redacted]	

5.2 AE SPECIFICATIONS

5.2.1 Media Storage AE – Specification

The Somaris/10 provides conformance to the following Application Profiles as an FSC as well as an FSR. The FSU role is only supported on a non-optical storage device (e.g. USB stick).

In addition augmented conformance is provided to store extra data objects important for the full feature support of the *syngo®*-based products. Details are listed below:

Table 65: Media - Application Profiles and Real-World Activities

Application Profiles Supported	Real-World Activity	Role	Service Class Option
AUG-GEN-CD	Browse Directory Information Import into Application Export to local Archive Media	FSR, FSC	Interchange
AUG-GEN-DVD			
AUG- GEN-DVD-J2K			
AUG-GEN-BD			
AUG-GEN-BD-J2K			
AUG- GEN-USB-J2K		FSR, FSC , FSU	
STD-GEN-CD	Browse Directory Information Import into Application Export to local Archive Media	FSR, FSC	Interchange
STD-GEN-DVD			
STD-GEN-DVD-J2K			
STD-GEN-BD			
STD-GEN-BD-J2K			
STD-GEN-USB-J2K		FSR, FSC , FSU	

5.2.1.1 Real-World Activities

5.2.1.1.1 Activity “Browse Directory Information”

The Somaris/10 acts as FSR using the interchange option when requested to read the media directory.

The Somaris/10 will read the DICOMDIR and insert those directory entries that are valid for the application profiles supported, into a local database. The database then is used for browsing media contents.

Note: The “Icon Image Sequence” is also supported in DICOMDIR. But only those Icon Images with “Bits Allocated” (0028,0100) equal to 8 and size of 64x64 or 128x128 pixels are imported into database and are visible in the Browser.

5.2.1.1.2 Real World Activity “Import into Application”

The Somaris/10 application acts as FSR using the interchange option when requested to read SOP Instances from the medium into the application.

The SOP Instance selected from the media directory will be copied into the running Application. Only SOP Instances, that are valid for the application profile supported and supported by can be retrieved from media.

5.2.1.1.3 Real-World Activity “Export to local Archive Media”

The Somaris/10 application acts as FSU (for media with existing DICOM file-set) or FSC (media not initialized) using the interchange option when requested to copy SOP Instances from the local storage to local Archive Medium. The activity as FSU is only possible as long as the local burning SW of Somaris/10 has not already processed the generated ISO file.

The Somaris/10 application will receive a list of SOP Instances to be copied to the local archive medium. Depending on the profile selected (Standard: uncompressed, with DICOMDIR; Patient: compressed with DICOMDIR) the SOP Instances will be taken, and an ISO file is being generated that includes the DICOMDIR and the corresponding objects.

It is then up to Somaris/10 local configuration (if equipped with a local media burner) to burn the ISO file to the appropriate media.

5.2.1.2 SOP Classes and Transfer Syntaxes

These Application Profiles are based on the Media Storage Service Class with the Interchange Option. The Somaris/10 provides Standard Conformance to the the SOP Classes listed in “Table 1: Network Services” section "SOP Classes Created by the Somaris/10" and "SOP Classes Managed by the Somaris/10" in the “Conformance Statement Overview”.

Using the Application Profiles supporting compression (AUG- GEN-DVD-J2K, AUG-GEN-BD-J2K, AUG- GEN-USB-J2K, STD-GEN-DVD-J2K, STD-GEN-USB-J2K, STD-GEN-BD-J2K) the following Transfer Syntaxes are supported:

Table 66: Transfer Syntaxes for STD-GEN-DVD-J2K, STD-GEN-BD-J2K and STD-GEN-USB-J2K

UID value	Transfer Syntax	Image Objects	Non-Image Objects
1.2.840.10008.1.2.1	Explicit Value Representation Little Endian native	yes	yes
1.2.840.10008.1.2.4.50	JPEG Baseline (Process 1) lossy compressed	yes	no
1.2.840.10008.1.2.4.51	JPEG Extended (Process 2 & 4) lossy compressed	yes	no
1.2.840.10008.1.2.4.70	JPEG Lossless, Non-Hierarchical, First-Order Prediction (Process 14) lossless compressed	yes	no
1.2.840.10008.1.2.4.90	JPEG 2000 Image Compression (Lossless Only) compressed	yes	no
1.2.840.10008.1.2.4.91	JPEG 2000 Image Compression lossy compressed	yes	no
1.2.840.10008.1.2.5	RLE Lossless compressed	yes	no

Using the Application Profiles that do not support compression (AUG- GEN-DVD, AUG-GEN-BD, AUG- GEN-USB, STD-GEN-DVD, STD-GEN-BD, STD-GEN-USB) only Explicit Value Representation Little Endian (1.2.840.10008.1.2.1) is supported.

5.3 AUGMENTED AND PRIVATE APPLICATION PROFILES

5.3.1 Augmented Application Profiles

The standard application profiles are augmented with private object Siemens CSA Non-Image.

Table 67: Private SOP Classes and Transfer Syntaxes for Augmented Media Profiles

Information Object Definition	SOP Class UID	Transfer Syntax UID	FSC	FSR
CSA Non-Image Storage	1.3.12.2.1107.5.9.1	Explicit VR Little Endian Uncompressed 1.2.840.10008.1.2.1	O	M

The Siemens non-image is typically used for raw data and 3D private data.

5.4 MEDIA CONFIGURATION

N/A

6 Support of Extended Character Sets

The Somaris/10 DICOM application supports the following character sets as defined in the four tables below:

Table 68: Single-Byte Character Sets without Code Extension

Character Set Description	Defined Term	ISO registration number	Character Set
Default repertoire	None	ISO_IR 6	ISO 646:
Latin alphabet No. 1	ISO_IR 100	ISO_IR 100	Supplementary set
		ISO_IR 6	ISO 646:
Latin alphabet No. 2	ISO_IR 101	ISO_IR 101	Supplementary set
		ISO_IR 6	ISO 646
Latin alphabet No. 3	ISO_IR 109	ISO_IR 109	Supplementary set
		ISO_IR 6	ISO 646
Latin alphabet No. 4	ISO_IR 110	ISO_IR 110	Supplementary set
		ISO_IR 6	ISO 646
Cyrillic	ISO_IR 144	ISO_IR 144	Supplementary set
		ISO_IR 6	ISO 646
Arabic	ISO_IR 127	ISO_IR 127	Supplementary set
		ISO_IR 6	ISO 646
Greek	ISO_IR 126	ISO_IR 126	Supplementary set
		ISO_IR 6	ISO 646
Hebrew	ISO_IR 138	ISO_IR 138	Supplementary set
		ISO_IR 6	ISO 646
Latin alphabet No. 5	ISO_IR 148	ISO_IR 148	Supplementary set
		ISO_IR 6	ISO 646
Japanese	ISO_IR 13	ISO_IR 13	JIS X 0201: Katakana
		ISO_IR 14	JIS X 0201: Romaji
Thai	ISO_IR166	ISO_IR166	TIS 620-253 (1990)
		ISO_IR 6	ISO 646

Table 69: Single-Byte Characters Sets with Code Extension

Character Set Description	Defined Term	Standard for Code Extension	ESC sequence	ISO registration number	Character Set
Default repertoire	ISO 2022 IR 6	ISO 2022	ESC 02/08 04/02	ISO-IR 6	ISO 646
Latin alphabet No.1	ISO 2022 IR 100	ISO 2022	ESC 02/13 04/01	ISO-IR 100	Supplementary set
		ISO 2022	ESC 02/08 04/02	ISO-IR 6	ISO 646
Latin alphabet No.2	ISO 2022 IR 101	ISO 2022	ESC 02/13 04/02	ISO-IR 101	Supplementary set
		ISO 2022	ESC 02/08 04/02	ISO-IR 6	ISO 646

Latin alphabet No.3	ISO 2022 IR 109	ISO 2022	ESC 02/13 04/03	ISO-IR 109	Supplementary set
		ISO 2022	ESC 02/08 04/02	ISO-IR 6	ISO 646
Latin alphabet No.4	ISO 2022 IR 110	ISO 2022	ESC 02/13 04/04	ISO-IR 110	Supplementary set
		ISO 2022	ESC 02/08 04/02	ISO-IR 6	ISO 646

Multi-Byte Character Sets without Code Extension

Table 70: Multi-Byte Character Sets without Code Extension

Character Set Description	Defined Term	ISO registration number	Character Set
Unicode	ISO_IR 192	ISO 10646	Unicode in UTF-8
Chinese	GB18030	GB18030	GB 18030-2000 (China Association for Standardization)

Table 71: Multi-Byte Character Sets with Code Extension

Character Set Description	Defined Term	Standard for Code Extension	ESC sequence	ISO registration number	Character Set
Japanese	ISO 2022 IR 159	ISO 2022	ESC 02/04 02/08 04/04	ISO-IR 159 ISO-IR 87	JIS X 0212: Supplementary Kanji set
Korean	ISO 2022 IR 149	ISO 2022	ESC 02/04 02/09 04/03	ISO-IR 149	KS X 1001: Hangul and Hanja

All Special Character Sets (SCS) listed above are supported for incoming Data. When creating new Instances, the system will use the default SCS (or SCS List) configured on the machine.

When there is a mismatch between the given character set in attribute (0008,0005) and the characters in an IOD received by the system, then the following measures are taken to make the characters DICOM conform:

- Convert each illegal character to '?'

There are three categories of character sets which have to be differentiated because of their different encoding formats:

- Conventional ISO character sets: ISO_IR 6, ISO 2022 IR 6, ISO_IR 100, etc.
  → encoded in ISO 2022
- ISO_IR 192 → encoded in UTF-8
- GB18030 → encoded in GB18030

It is not possible to recognize the following mismatches automatically on receiving or importing:

- An attribute value is encoded in ISO_IR 192 ←→ (0008,0005) contains a conventional ISO character set as primary character set
- An attribute value is encoded in GB18030 ←→ (0008,0005) contains a conventional ISO character set as primary character set
- An attribute value is encoded in ISO 2022 ←→ (0008,0005) contains ISO_IR 192
- An attribute value is encoded in ISO 2022 ←→ (0008,0005) contains GB18030

An IOD that contains one of the above mentioned inconsistencies is not DICOM conform. As these kinds of inconsistencies cannot be recognized by the system, the IOD will not be rejected but the character data might be corrupted.

The Somaris/10 supports Kanji characters in the byte zones after 74 (79, 7A, 7B and 7C).

7 Attribute confidentiality profiles

7.1 De-identification

The Somaris/10 application can de-identify attributes, when exporting to Media. Three different levels of de-identification are supported:

- Full de-identification
- Reduced de-identification
- Service de-identification

The user needs to select the appropriate de-identification level during export.

Handling of public attributes during de-identification:

- Attributes listed in Table 72: Application Level Confidentiality Profile attributes (standard tags) will be de-identified as specified for the different levels. Attributes not listed in the table are not PII/PHI-relevant and will not be de-identified.

Handling of private attributes during de-identification:

- Full de-identification: in general private attributes are not included in anonymized data, exceptions are listed in Table 73
- Reduced de-identification: private attributes are de-identified according to Table 73
- Service de-identification: in general private attributes are included in anonymized data, exceptions are listed in Table 73

In the following table for attributes marked with:

- 'Yes' - data are de-identified
- 'No' - data are kept

Table 72: Application Level Confidentiality Profile attributes (standard tags)

DICOM Tag	Attribute Name	Full	Reduced	Service
(0000,1000)	Affected SOP Instance UID	Yes	No	No
(0000,1001)	Requested SOP Instance UID	Yes	No	No
(0002,0003)	Media Storage SOP Instance UID	Yes	No	No
(0004,1511)	Referenced SOP Instance UID in File	Yes	No	No
(0008,0014)	Instance Creator UID	Yes	No	No
(0008,0015)	Instance Coercion DateTime	Yes	No	No
(0008,0018)	SOP Instance UID	Yes	No	No
(0008,0020)	Study Date	Yes	No	No
(0008,0021)	Series Date	Yes	No	No
(0008,0022)	Acquisition Date	Yes	No	No
(0008,0023)	Content Date	Yes	No	No
(0008,0024)	Overlay Date	Yes	No	No
(0008,0025)	Curve Date	Yes	No	No
(0008,002A)	Acquisition DateTime	Yes	No	No
(0008,0030)	Study Time	Yes	No	No
(0008,0031)	Series Time	Yes	No	No
(0008,0032)	Acquisition Time	Yes	No	No
(0008,0033)	Content Time	Yes	No	No
(0008,0034)	Overlay Time	Yes	No	No
(0008,0035)	Curve Time	Yes	No	No
(0008,0050)	Accession Number	Yes	Yes	No

DICOM Tag	Attribute Name	Full	Reduced	Service
(0008,0058)	Failed SOP Instance UID List	Yes	No	No
(0008,0080)	Institution Name	Yes	Yes	No
(0008,0081)	Institution Address	Yes	Yes	No
(0008,0082)	Institution Code Sequence	Yes	Yes	No
(0008,0090)	Referring Physician's Name	Yes	Yes	Yes
(0008,0092)	Referring Physician's Address	Yes	Yes	Yes
(0008,0094)	Referring Physician's Telephone Numbers	Yes	Yes	Yes
(0008,0096)	Referring Physician's Identification Sequence	Yes	Yes	No
(0008,010D)	Context Group Extension Creator UID	Yes	No	No
(0008,0201)	Timezone Offset From UTC	Yes	No	No
(0008,1010)	Station Name	Yes	Yes	Yes
(0008,1030)	Study Description	Yes	Yes	No
(0008,103E)	Series Description	Yes	Yes	No
(0008,1040)	Institutional Department Name	Yes	Yes	No
(0008,1048)	Physician(s) of Record	Yes	Yes	Yes
(0008,1049)	Physician(s) of Record Identification Sequence	Yes	Yes	No
(0008,1050)	Performing Physicians' Name	Yes	Yes	Yes
(0008,1052)	Performing Physicians' Identification Sequence	Yes	Yes	No
(0008,1060)	Name of Physician(s) Reading Study	Yes	Yes	Yes
(0008,1062)	Physician Reading Study Identification Sequence	Yes	Yes	No
(0008,1070)	Operators' Name	Yes	Yes	Yes
(0008,1072)	Operators' Identification Sequence	Yes	Yes	No
(0008,1080)	Admitting Diagnoses Description	Yes	Yes	No
(0008,1084)	Admitting Diagnoses Code Sequence	Yes	Yes	No
(0008,1110)	Referenced Study Sequence	Yes	No	No
(0008,1111)	Referenced Performed Procedure Step Sequence	Yes	No	No
(0008,1120)	Referenced Patient Sequence	Yes	Yes	No
(0008,1140)	Referenced Image Sequence	Yes	No	No
(0008,1155)	Referenced SOP Instance UID	Yes	No	No
(0008,1195)	Transaction UID	Yes	No	No
(0008,2111)	Derivation Description	Yes	No	No
(0008,2112)	Source Image Sequence	Yes	No	No
(0008,3010)	Irradiation Event UID	Yes	No	No
(0008,4000)	Identifying Comments	Yes	Yes	No
(0008,9123)	Creator Version UID	Yes	No	No
(0010,0010)	Patient's Name	Yes	Yes	Yes
(0010,0020)	Patient ID	Yes	Yes	Yes
(0010,0021)	Issuer of Patient ID	Yes	Yes	No
(0010,0030)	Patient's Birth Date	Yes	Yes	Yes
(0010,0032)	Patient's Birth Time	Yes	Yes	No
(0010,0040)	Patient's Sex	Yes	No	No
(0010,0050)	Patient's Insurance Plan Code Sequence	Yes	Yes	Yes
(0010,0101)	Patient's Primary Language Code Sequence	Yes	Yes	Yes
(0010,0102)	Patient's Primary Language Modifier Code Sequence	Yes	Yes	Yes
(0010,1000)	Other Patient IDs	Yes	Yes	Yes
(0010,1001)	Other Patient Names	Yes	Yes	Yes
(0010,1002)	Other Patient IDs Sequence	Yes	Yes	Yes
(0010,1005)	Patient's Birth Name	Yes	Yes	Yes
(0010,1010)	Patient's Age	Yes	No	No
(0010,1020)	Patient's Size	Yes	No	No
(0010,1030)	Patient's Weight	Yes	No	No
(0010,1040)	Patient Address	Yes	Yes	Yes
(0010,1050)	Insurance Plan Identification	Yes	Yes	No
(0010,1060)	Patient's Mother's Birth Name	Yes	Yes	Yes
(0010,1080)	Military Rank	Yes	Yes	No
(0010,1081)	Branch of Service	Yes	Yes	No
(0010,1090)	Medical Record Locator	Yes	Yes	No

DICOM Tag	Attribute Name	Full	Reduced	Service
(0010,1100)	Referenced Patient Photo Sequence	Yes	Yes	No
(0010,2000)	Medical Alerts	Yes	Yes	No
(0010,2110)	Allergies	Yes	Yes	No
(0010,2150)	Country of Residence	Yes	Yes	No
(0010,2152)	Region of Residence	Yes	Yes	No
(0010,2154)	Patient's Telephone Number	Yes	Yes	Yes
(0010,2160)	Ethnic Group	Yes	No	No
(0010,2180)	Occupation	Yes	Yes	No
(0010,21A0)	Smoking Status	Yes	No	No
(0010,21B0)	Additional Patient's History	Yes	Yes	Yes
(0010,21C0)	Pregnancy Status	Yes	No	No
(0010,21D0)	Last Menstrual Date	Yes	No	No
(0010,21F0)	Patient's Religious Preference	Yes	Yes	No
(0010,2203)	Patient Sex Neutered	Yes	No	No
(0010,2297)	Responsible Person	Yes	Yes	No
(0010,2299)	Responsible Organization	Yes	Yes	No
(0010,4000)	Patient Comments	Yes	Yes	Yes
(0018,0010)	Contrast Bolus Agent	Yes	Yes	No
(0018,1000)	Device Serial Number	Yes	Yes	No
(0018,1002)	Device UID	Yes	No	No
(0018,1004)	Plate ID	Yes	Yes	No
(0018,1005)	Generator ID	Yes	Yes	No
(0018,1007)	Cassette ID	Yes	Yes	No
(0018,1008)	Gantry ID	Yes	Yes	No
(0018,1030)	Protocol Name	Yes	Yes	No
(0018,1400)	Acquisition Device Processing Description	Yes	Yes	No
(0018,2042)	Target UID	Yes	No	No
(0018,4000)	Acquisition Comments	Yes	Yes	No
(0018,700A)	Detector ID	Yes	Yes	No
(0018,9424)	Acquisition Protocol Description	Yes	Yes	No
(0018,9516)	Start Acquisition DateTime	Yes	No	No
(0018,9517)	End Acquisition DateTime	Yes	No	No
(0018,A003)	Contribution Description	Yes	Yes	No
(0020,000D)	Study Instance UID	Yes	No	No
(0020,000E)	Series Instance UID	Yes	No	No
(0020,0010)	Study ID	Yes	Yes	No
(0020,0052)	Frame of Reference UID	Yes	No	No
(0020,0200)	Synchronization Frame of Reference UID	Yes	No	No
(0020,3401)	Modifying Device ID	Yes	Yes	No
(0020,3404)	Modifying Device Manufacturer	Yes	Yes	No
(0020,3406)	Modified Image Description	Yes	Yes	No
(0020,4000)	Image Comments	Yes	Yes	No
(0020,9158)	Frame Comments	Yes	Yes	No
(0020,9161)	Concatenation UID	Yes	No	No
(0020,9164)	Dimension Organization UID	Yes	No	No
(0028,1199)	Palette Color Lookup Table UID	Yes	No	No
(0028,1214)	Large Palette Color Lookup Table UID	Yes	No	No
(0028,4000)	Image Presentation Comments	Yes	Yes	No
(0032,0012)	Study ID Issuer	Yes	Yes	No
(0032,1020)	Scheduled Study Location	Yes	Yes	No
(0032,1021)	Scheduled Study Location AE Title	Yes	Yes	No
(0032,1030)	Reason for Study	Yes	Yes	No
(0032,1032)	Requesting Physician	Yes	Yes	No
(0032,1033)	Requesting Service	Yes	Yes	No
(0032,1060)	Requested Procedure Description	Yes	Yes	No
(0032,1070)	Requested Contrast Agent	Yes	Yes	No
(0032,4000)	Study Comments	Yes	Yes	No

DICOM Tag	Attribute Name	Full	Reduced	Service
(0038,0004)	Referenced Patient Alias Sequence	Yes	Yes	No
(0038,0010)	Admission ID	Yes	Yes	No
(0038,0011)	Issuer of Admission ID	Yes	Yes	No
(0038,001E)	Scheduled Patient Institution Residence	Yes	Yes	No
(0038,0020)	Admitting Date	Yes	No	No
(0038,0021)	Admitting Time	Yes	No	No
(0038,0040)	Discharge Diagnosis Description	Yes	Yes	No
(0038,0050)	Special Needs	Yes	Yes	No
(0038,0060)	Service Episode ID	Yes	Yes	No
(0038,0061)	Issuer of Service Episode ID	Yes	Yes	No
(0038,0062)	Service Episode Description	Yes	Yes	No
(0038,0300)	Current Patient Location	Yes	Yes	No
(0038,0400)	Patient's Institution Residence	Yes	Yes	No
(0038,0500)	Patient State	Yes	Yes	No
(0038,4000)	Visit Comments	Yes	Yes	No
(0040,0001)	Scheduled Station AE Title	Yes	Yes	No
(0040,0002)	Scheduled Procedure Step Start Date	Yes	No	No
(0040,0003)	Scheduled Procedure Step Start Time	Yes	No	No
(0040,0004)	Scheduled Procedure Step End Date	Yes	No	No
(0040,0005)	Scheduled Procedure Step End Time	Yes	No	No
(0040,0006)	Scheduled Performing Physician Name	Yes	Yes	No
(0040,0007)	Scheduled Procedure Step Description	Yes	Yes	No
(0040,000B)	Scheduled Performing Physician Identification Sequence	Yes	Yes	No
(0040,0010)	Scheduled Station Name	Yes	Yes	No
(0040,0011)	Scheduled Procedure Step Location	Yes	Yes	No
(0040,0012)	Pre-Medication	Yes	Yes	No
(0040,0241)	Performed Station AE Title	Yes	Yes	No
(0040,0242)	Performed Station Name	Yes	Yes	No
(0040,0243)	Performed Location	Yes	Yes	No
(0040,0244)	Performed Procedure Step Start Date	Yes	No	No
(0040,0245)	Performed Procedure Step Start Time	Yes	No	No
(0040,0250)	Performed Procedure Step End Date	Yes	No	No
(0040,0251)	Performed Procedure Step End Time	Yes	No	No
(0040,0253)	Performed Procedure Step ID	Yes	Yes	No
(0040,0254)	Performed Procedure Step Description	Yes	Yes	No
(0040,0275)	Request Attributes Sequence	Yes	Yes	No
(0040,0280)	Comments on Performed Procedure Step	Yes	Yes	No
(0040,0555)	Acquisition Context Sequence	Yes	Yes	No
(0040,1001)	Requested Procedure ID	Yes	Yes	No
(0040,1002)	Reason For The Request-ed Procedure	Yes	Yes	No
(0040,1004)	Patient Transport Arrangements	Yes	Yes	No
(0040,1005)	Requested Procedure Location	Yes	Yes	No
(0040,1010)	Names of Intended Recipient of Results	Yes	Yes	No
(0040,1011)	Intended Recipients of Results Identification Sequence	Yes	Yes	No
(0040,1101)	Person Identification Code Sequence	Yes	Yes	No
(0040,1102)	Person Address	Yes	Yes	No
(0040,1103)	Person Telephone Numbers	Yes	Yes	No
(0040,1400)	Requested Procedure Comments	Yes	Yes	No
(0040,2001)	Reason for Imaging Service Request	Yes	Yes	No
(0040,2008)	Order Entered By	Yes	Yes	No
(0040,2009)	Order Enterer Location	Yes	Yes	No
(0040,2010)	Order Callback Phone Number	Yes	Yes	No
(0040,2016)	Placer Order Number of Imaging Service Request	Yes	Yes	No
(0040,2017)	Filler Order Number of Imaging Service Request	Yes	Yes	No
(0040,2400)	Imaging Service Request Comments	Yes	Yes	No
(0040,3001)	Confidentiality Constraint on Patient Data Description	Yes	Yes	No
(0040,4005)	Scheduled Procedure Step Start DateTime	Yes	No	No

DICOM Tag	Attribute Name	Full	Reduced	Service
(0040,4010)	Scheduled Procedure Step Modification DateTime	Yes	No	No
(0040,4011)	Expected Completion Date Time	Yes	No	No
(0040,4023)	Referenced General Purpose Scheduled Procedure Step Transaction UID	Yes	No	No
(0040,4025)	Scheduled Station Name Code Sequence	Yes	Yes	No
(0040,4027)	Scheduled Station Geographic Location Code Sequence	Yes	Yes	No
(0040,4028)	Performed Station Name Code Sequence	Yes	Yes	No
(0040,4030)	Performed Station Geographic Location Code Sequence	Yes	Yes	No
(0040,4034)	Scheduled Human Performers Sequence	Yes	Yes	No
(0040,4035)	Actual Human Performers Sequence	Yes	Yes	No
(0040,4036)	Human Performers Organization	Yes	Yes	No
(0040,4037)	Human Performers Name	Yes	Yes	No
(0040,4050)	Performed Procedure Step Start DateTime	Yes	No	No
(0040,4051)	Performed Procedure Step End DateTime	Yes	No	No
(0040,4052)	Procedure Step Cancellation DateTime	Yes	No	No
(0040,A027)	Verifying Organization	Yes	Yes	No
(0040,A073)	Verifying Observer Sequence	Yes	Yes	No
(0040,A075)	Verifying Observer Name	Yes	Yes	No
(0040,A078)	Author Observer Sequence	Yes	Yes	No
(0040,A07A)	Participant Sequence	Yes	Yes	No
(0040,A07C)	Custodial Organization Sequence	Yes	Yes	No
(0040,A088)	Verifying Observer Identification Code Sequence	Yes	Yes	No
(0040,A123)	Person Name	Yes	Yes	No
(0040,A124)	UID	Yes	Yes	No
(0040,A171)	Observation UID	Yes	No	No
(0040,A172)	Referenced Observation UID (Trial)	Yes	No	No
(0040,A192)	Observation Date (Trial)	Yes	No	No
(0040,A193)	Observation Time (Trial)	Yes	No	No
(0040,A307)	Current Observer (Trial)	Yes	Yes	No
(0040,A352)	Verbal Source (Trial)	Yes	Yes	No
(0040,A353)	Address (Trial)	Yes	Yes	No
(0040,A354)	Telephone Number (Trial)	Yes	Yes	Yes
(0040,A358)	Verbal Source Identifier Code Sequence (Trial)	Yes	Yes	No
(0040,A402)	Observation Subject UID (Trial)	Yes	No	No
(0040,A730)	Content Sequence	Yes	Yes	No
(0040,DB0C)	Template Extension Organization UID	Yes	No	No
(0040,DB0D)	Template Extension Creator UID	Yes	No	No
(0070,0001)	Graphic Annotation Sequence	Yes	Yes	No
(0070,0084)	Content Creator's Name	Yes	Yes	No
(0070,0086)	Content Creator's Identification Code Sequence	Yes	Yes	No
(0070,031A)	Fiducial UID	Yes	No	No
(0088,0140)	Storage Media Fileset UID	Yes	No	No
(0088,0200)	Icon Image Sequence	Yes	Yes	No
(0088,0904)	Topic Title	Yes	Yes	No
(0088,0906)	Topic Subject	Yes	Yes	No
(0088,0910)	Topic Author	Yes	Yes	No
(0088,0912)	Topic Keywords	Yes	Yes	No
(0400,0100)	Digital Signature UID	Yes	Yes	No
(0400,0402)	Referenced Digital Signature Sequence	Yes	Yes	No
(0400,0403)	Referenced SOP Instance MAC Sequence	Yes	Yes	No
(0400,0404)	MAC	Yes	Yes	No
(0400,0550)	Modified Attributes Sequence	Yes	Yes	No
(0400,0561)	Original Attributes Sequence	Yes	Yes	Yes
(2030,0020)	Text String	Yes	Yes	No
(3006,0024)	Referenced Frame of Reference UID	Yes	No	No
(3006,00C2)	Related Frame of Reference UID	Yes	No	No
(3008,0105)	Source Serial Number	Yes	No	No

DICOM Tag	Attribute Name	Full	Reduced	Service
(300A,0013)	Dose Reference UID	Yes	No	No
(300E,0008)	Reviewer Name	Yes	Yes	No
(4000,0010)	Arbitrary	Yes	Yes	No
(4000,4000)	Text Comments	Yes	Yes	No
(4008,0042)	Results ID Issuer	Yes	Yes	No
(4008,0102)	Interpretation Recorder	Yes	Yes	No
(4008,010A)	Interpretation Transcriber	Yes	Yes	No
(4008,010B)	Interpretation Text	Yes	Yes	No
(4008,010C)	Interpretation Author	Yes	Yes	No
(4008,0111)	Interpretation Approver Sequence	Yes	Yes	No
(4008,0114)	Physician Approving Interpretation	Yes	Yes	No
(4008,0115)	Interpretation Diagnosis Description	Yes	Yes	No
(4008,0118)	Results Distribution List Sequence	Yes	Yes	No
(4008,0119)	Distribution Name	Yes	Yes	No
(4008,011A)	Distribution Address	Yes	Yes	No
(4008,0202)	Interpretation ID Issuer	Yes	Yes	No
(4008,0300)	Impressions	Yes	Yes	No
(4008,4000)	Results Comments	Yes	Yes	No
(50xx,xxxx)	Curve Data	Yes	Yes	No
(60xx,0100)	Overlay Bits Allocated	Yes	Yes	No
(60xx,0102)	Overlay Bit Position	Yes	Yes	No
(60xx,3000)	Overlay Data	Yes	Yes	No
(60xx,4000)	Overlay Comments	Yes	Yes	No
(FFFA,FFFA)	Digital Signatures Sequence	Yes	Yes	Yes
(FFFC,FFFC)	Data Set Trailing Padding	Yes	Yes	Yes

Table 73: Application Level Confidentiality Profile Attributes (private tags)

DICOM Tag	Attribute Name	Full	Reduced	Service
(0019,0005)	Multiphase UID	Yes	Yes	Yes
(0019, SIEMENS CT VA0 COAD, 90)	Osteo offset	Yes	No	No
(0019, SIEMENS CT VA0 COAD, 92)	Osteo Regression Line Slope	Yes	No	No
(0019, SIEMENS CT VA0 COAD, 93)	Osteo Regression Line Intercept	Yes	No	No
(0019, SIEMENS CT VA0 COAD, 96)	Osteo Phantom Number	Yes	No	No
(0019, SIEMENS MED NM, 93)	Phase start time	Yes	No	No
(0019, SIEMENS MED NM, A1)	Number of Phases	Yes	No	No
(0019, SIEMENS MED NM, A5)	Number of repeats / phase	Yes	No	No
(0019, SIEMENS MED NM, A6)	Cycles Per Repeat	Yes	No	No
(0019, SIEMENS MED NM, A7)	Repeat Start time	Yes	No	No
(0019, SIEMENS MED NM, A8)	Repeat Stop time	Yes	No	No
(0019, SIEMENS MED NM, A9)	Effective Repeat Time	Yes	No	No
(0019, SIEMENS MED NM, AA)	Acquired Cycles Per Repeat	Yes	No	No
(0033, SIEMENS MED NM, 29)	Crystal Thickness	Yes	No	No
(0033, SIEMENS MED NM, 30)	Preset Name Used for Acquisition	Yes	No	No
(0033, SIEMENS MED NM, 38)	Pixel Scale factor	Yes	No	No
(0035, SIEMENS MED NM, 00)	Specialized TOMO Type	Yes	No	No
(0035, SIEMENS MED NM, 04)	Repeat Number	Yes	No	No
(0035, SIEMENS MED NM, 05)	Phase Number	Yes	No	No
(0041, SIEMENS MED NM, 01)	WholeBody Tomo Position Index	Yes	No	No
(0041, SIEMENS MED NM, 02)	WholeBody Tomo Number of Positions	Yes	No	No
(0041, SIEMENS MED NM, 10)	Effective Emission Energy	Yes	No	No
(0057, SIEMENS MED NM, 03)	NM Pixel Units	Yes	No	No
(0061, SIEMENS MED NM, 62)	Recon Output Type	Yes	No	No
(0061, SIEMENS MED NM, 70)	NM Reconstruction Algorithm	Yes	No	No

DICOM Tag	Attribute Name	Full	Reduced	Service
(0061, SIEMENS MED NM, 8D)	PET Data Flag	Yes	No	No
(0065, SIEMENS MED NM, 01)	Original Detector Index	Yes	No	No
(0065, SIEMENS MED NM, 02)	Siemens Planar Data Organization	Yes	No	No
(7FE3, SIEMENS MED NM, 14)	Minimum pixel value in frame	Yes	No	No
(7FE3, SIEMENS MED NM, 15)	Maximum pixel value in frame	Yes	No	No
(7FE3, SIEMENS MED NM, 29)	Number of Rwaves in a frame	Yes	No	No
(0021, SIEMENS MR SDS 01, 19)	MR Phoenix Protocol	Yes	No	No
(0029, SIEMENS CT EXAM IMAGE,49)	Metal Artifact Reduction Type	Yes	No	No
(0029, SIEMENS CSA ENVELOPE, 10)	Syngo Report Data	Yes	No	No
(0029, SIEMENS CSA ENVELOPE, 11)	Syngo Report Presentation	Yes	No	No
(0029, SIEMENS CSA HEADER, 08)	Modality Image Header Type	Yes	No	No
(0029, SIEMENS CSA HEADER, 09)	Modality Image Header Version	Yes	No	No
(0029, SIEMENS CSA HEADER, 10)	Modality Image Header Info	Yes	No	No
(0029, SIEMENS CSA HEADER, 18)	Modality Series Header Type	Yes	No	No
(0029, SIEMENS CSA HEADER, 19)	Modality Series Header Version	Yes	No	No
(0029, SIEMENS CSA HEADER, 20)	Modality Series Header Info	Yes	No	No
(0029, SIEMENS MEDCOM HEADER, 40)	Application Header Sequence	Yes	No	No
(0029, SIEMENS MEDCOM HEADER, 41)	Application Header Type	Yes	No	No
(0029, SIEMENS MEDCOM HEADER, 42)	Application Header ID	Yes	No	No
(0029, SIEMENS MEDCOM HEADER, 43)	Application Header Version	Yes	No	No
(0029, SIEMENS MEDCOM HEADER, 44)	Application Header Info	Yes	No	No
(0029, SIEMENS CT APPL DATASET, 00)	Dual Energy Algorithm Parameters	Yes	No	No
(0029, SIEMENS CT APPL ALG PARAMS, 20)	Perfusion Result Set Id	Yes	No	No
(0029, SIEMENS CSA REPORT, 08)	*syngo* Report Type	Yes	No	No
(0029, SIEMENS CSA REPORT, 09)	*syngo* Report Version	Yes	No	No
(0029, SIEMENS CSA REPORT, 15)	SR Variant	Yes	No	No
(0029, SIEMENS CSA REPORT, 17)	SC SOP Instance UID	Yes	Yes	Yes
(0043, GEMS_PARM_01, 1E)	GE Delta Start Time	Yes	No	No
(0049, SIEMENS CT SPP HEADER, 10)	Raw Data Container	Yes	No	No
(0067, SIEMENS MED MI, 02)	Scanner Console Generation	Yes	No	No
(0067, SIEMENS MED MI, 03)	Recon Parameters	Yes	No	No
(0067, SIEMENS MED MI, 05)	Device IVK	Yes	No	No
(0067, SIEMENS MED MI, 14)	Raw Data Description	Yes	No	No
(0067, SIEMENS MED MI, 16)	Raw Data Series Instance UIDs	Yes	Yes	Yes
(0067, SIEMENS MED MI, 17)	Raw Data Referenced Series Instance UIDs	Yes	Yes	Yes
(0071, SIEMENS MED PT, 22)	Decay Correction DateTime	Yes	No	No
(0071, SIEMENS MED PT, 23)	Volume Index	Yes	No	No
(0071, SIEMENS MED PT, 24)	Time Slice Duration	Yes	No	No
(0071, SIEMENS MED PT, 25)	Frame Reference Time Sequence	Yes	No	No
(0071, SIEMENS MED PT, 26)	Histogramming Method	Yes	No	No
(0071, SIEMENS MED PT MU MAP, 01)	SOP Class of Source	Yes	No	No
(0071, SIEMENS MED PT MU MAP, 02)	Related Mu Map Series	Yes	No	No

7.2 De-identification for Raw Data

The application treats Raw Data, see 9.1.3, separately with regards to Media Export.
There is only one de-identification level available for Raw Data, which can be referred to as the Full de-identification level as described in chapter 7.1. The following differences apply:

- [redacted]

8 Security

8.1 Security Profiles

8.1.1 Time Synchronization Profiles

Time Synchronization Profiles: The Somaris/10 acts as an NTP Client in the Maintain Time Transaction.

8.1.2 Basic TLS Secure Transport Connection Profile

Basic TLS Secure Transport Connection Profile supports TLS version 1.0, 1.1 and 1.2 protocols with the following features:

Supported TLS Feature	Mechanism
Entity Authentication	RSA based certificates
Exchange of Master Secrets	RSA
Data Integrity	SHA
Privacy	Triple DES EDE, CBC

The default secure DICOM port is 2762 (can be reconfigured).

8.2 Association Level Security

It is possible to configure whether the SCP will only answer to known AETs or to any AET.

8.3 Application Level Security

- User must login with own password
- For configuration and Maintenance, Service Technician must login with a separate password.

9 Annexes

9.1 IOD Contents

This section specifies each IOD created by this application (excluding private IOD's). It specifies the attribute name, tag, VR, and value. The value specifies the range and source (e.g. user input, Modality Worklist, automatically generated, etc.). For content items in templates, the range and source of the concept name and concept values are specified.

9.1.1 Abbreviations

Abbreviations used in the IOD tables for the column "Presence of Module" are

ALWAYS	The module is always present
CONDITIONAL	The module is used under specified condition

Abbreviations used in the Module table for the column "Presence of Value" are:

ALWAYS	The attribute is always present with a value
EMPTY	The attribute is always present without any value (attribute sent zero length)
VNAP	The attribute is always present and its Value is Not Always Present (attribute sent zero length if no value is present)
ANAP	The attribute is present under specified condition – if present then it will always have a value
ANAPCV	The attribute is present under specified condition – if present then its Value is Not Always Present (attribute sent zero length if condition applies and no value is present)
ANAPEV	The attribute is present under specified condition – if present then it will not have any value

Abbreviations used in the Module table for the column "Source" are:

AUTO	The attribute value is generated automatically
CONFIG	The attribute value source is a configurable parameter
COPY	The attribute value source is another SOP instance
FIXED	The attribute value is hard coded in the application
IMPLICIT	The attribute value source is a user-implicit setting
MWL	The attribute value source is a Modality Worklist
USER	The attribute value source is explicit user input

9.1.2 CT Image Storage SOP Class

Table 9-1: IOD of created CT Image Storage SOP Class Instances

IE	Module	Reference	Usage
Patient	Patient	Table 9-2	ALWAYS

IE	Module	Reference	Usage
Study	General Study	Table 9-3	ALWAYS
	Patient Study	Table 9-4	CONDITIONAL
Series	General Series	Table 9-5	ALWAYS
Frame of Reference	Frame of Reference	Table 9-6	ALWAYS
Equipment	General Equipment	Table 9-7	ALWAYS
Image	General Image	Table 9-8	ALWAYS
	Image Plane	Table 9-10	ALWAYS
	Image Pixel	Table 9-9	ALWAYS
	Contrast/Bolus	Table 9-11	CONDITIONAL
	CT Image	Table 9-12	ALWAYS
	Overlay Plane	Table 9-13	CONDITIONAL
	VOI LUT	Table 9-14	ALWAYS
	SOP Common	Table 9-15	ALWAYS
	Multi-energy CT Image Module	Table 9-16	Conditional

9.1.2.1 Patient Module Attributes

Table 9-2: Patient Module

DICOM Attribute Name	Tag	VR	Value	Presence of Value	Source
Patient's Name	(0010,0010)	PN		ALWAYS	MWL, USER, AUTO
Patient ID	(0010,0020)	LO		ALWAYS	MWL, USER, AUTO
Patient's Birth Date	(0010,0030)	DA		ALWAYS	MWL, USER, AUTO
Patient's Sex	(0010,0040)	CS	M, F, O	ALWAYS	MWL, USER, AUTO
Patient's Birth Time	(0010,0032)	TM		ANAP	MWL, AUTO
Other Patient IDs	(0010,1000)	LO		ANAP	MWL, AUTO
Other Patient Names	(0010,1001)	PN		ANAP	MWL, AUTO
Ethnic Group	(0010,2160)	SH		ANAP	MWL, AUTO

9.1.2.2 General Study Module Attributes

Table 9-3: General Study Module

DICOM Attribute Name	Tag	VR	Value	Presence of Value	Source
Study Instance UID	(0020,000D)	UI		ALWAYS	MWL AUTO
Study Date	(0008,0020)	DA		ALWAYS	AUTO
Study Time	(0008,0030)	TM		ALWAYS	AUTO
Referring Physician's Name	(0008,0090)	PN		VNAP	MWL
Study ID	(0020,0010)	SH		ANAP	MWL
Accession Number	(0008,0050)	SH		VNAP	MWL
Study Description	(0008,1030)	LO		VNAP	MWL, AUTO
Procedure Code Sequence	(0008,1032)	SQ		ANAP	AUTO

DICOM Attribute Name	Tag	VR	Value	Presence of Value	Source
>Code Value	(0008,0100)	SH		ALWAYS	AUTO
>Code Meaning	(0008,0104)	LO		ALWAYS	AUTO
>Coding Scheme Designator	(0008,0102)	SH	99CT_VIA for d.via task flows	ALWAYS	AUTO
Referenced Study Sequence	(0008,1110)	SQ		ANAP	AUTO
>Referenced SOP Class UID	(0008,1150)	UI		ANAP	AUTO
>Referenced SOP Instance UID	(0008,1155)	UI		ANAP	AUTO

9.1.2.3 Patient Study Module Attributes

Table 9-4: Patient Study Module

DICOM Attribute Name	Tag	VR	Value	Presence of Value	SOURCE
Admitting Diagnoses Description	(0008,1080)	LO		ANAP	MWL AUTO
Patient's Age	(0010,1010)	AS		ANAP	MWL; AUTO
Patient's Size	(0010,1020)	DS		ANAP	MWL; AUTO
Patient's Weight	(0010,1030)	DS		ANAP	MWL; AUTO
Medical Alerts	(0010,2000)	LO		ANAP	AUTO
Allergies	(0010,2110)	LO		ANAP	AUTO
Smoking Status	(0010,21A0)	CS		ANAP	AUTO
Additional Patient History	(0010,21B0)	LT		ANAP	AUTO
Pregnancy Status	(0010,21C0)	US		ANAP	AUTO
Last Menstrual Date	(0010,21D0)	DA		ANAP	AUTO
Occupation	(0010,2180)	SH		ANAP	MWL
Admission ID	(0038,0010)	LO		ANAP	MWL AUTO

9.1.2.4 General Series Module Attributes

Table 9-5: General Series Module

DICOM Attribute Name	Tag	VR	Value	Presence of Value	Source
Modality	(0008,0060)	CS	CT	ALWAYS	FIXED
Series Instance UID	(0020,000E)	UI		ALWAYS	AUTO
Series Number	(0020,0011)	IS	e.g. 940 for Ranges, from Original for all other Derived Volume Data	ALWAYS	AUTO
Laterality	(0020,0060)	CS	only available if the body part examined is a paired structure	EMPTY	AUTO
Series Date	(0008,0021)	DA		ALWAYS	AUTO
Series Time	(0008,0031)	TM		ALWAYS	AUTO

DICOM Attribute Name	Tag	VR	Value	Presence of Value	Source
Protocol Name	(0018,1030)	LO	e.g. “Radial Ranges”, “Parallel Ranges”, “Volume Ranges”, “Curved Ranges” or from Original	ANAP	USER AUTO
Series Description	(0008,103E)	LO		ANAP	USER
Body Part Examined	(0018,0015)	CS		ALWAYS	AUTO
Patient Position	(0018,5100)	CS		ALWAYS	AUTO
Request Attributes Sequence	(0040,0275)	SQ		ALWAYS	AUTO
>Requested Procedure ID	(0040,1001)	SH		ALWAYS	MWL
>Requested Procedure Description	(0040,0009)	SH		ALWAYS	MWL
>Accession Number	(0008,0050)	SH		ALWAYS	MWL
>Study Instance UID	(0020,000D)	UI		ALWAYS	MWL
Performed Procedure Step ID	(0040,0253)	SH		ALWAYS	MWL
Performed Procedure Step Start Date	(0040,0244)	DA		ALWAYS	MWL
Performed Procedure Step Start Time	(0040,0245)	TM		ALWAYS	MWL
Performed Procedure Step Description	(0040,0254)	LO		ALWAYS	MWL
Performed Protocol Code Sequence	(0040,0260)	SQ		ANAP	AUTO
>Code Value	(0008,0100)	SH		ALWAYS	AUTO
>Code Meaning	(0008,0104)	LO		ALWAYS	AUTO
>Coding Scheme Designator	(0008,0102)	SH	99CT_VIA for d.via data roles	ALWAYS	AUTO

9.1.2.5 Frame of Reference Module Attributes

Table 9-6: Frame of Reference Module

DICOM Attribute Name	Tag	VR	Value	Presence of Value	Source
Frame of Reference UID	(0020,0052)	UI		ALWAYS	AUTO
Position Reference Indicator	(0020,1040)	LO		EMPTY	AUTO

9.1.2.6 General Equipment Module Attributes

Table 9-7: General Equipment Module

DICOM Attribute Name	Tag	VR	Value	Presence of Value	Source
Manufacturer	(0008,0070)	LO	SIEMENS Healthineers	ALWAYS	FIXED

DICOM Attribute Name	Tag	VR	Value	Presence of Value	Source
Institution Name	(0008,0080)	LO	from WS Configuration	ALWAYS	CONFIG
Institution Address	(0008,0081)	ST	from WS Configuration	ALWAYS	CONFIG
Station Name	(0008,1010)	SH	from WS Configuration	ALWAYS	CONFIG
Institutional Department Name	(0008,1040)	LO	from WS Configuration	ALWAYS	CONFIG
Manufacturer's Model Name	(0008,1090)	LO	SOMATOM go.Now, SOMATOM go.Up, SOMATOM go.All, SOMATOM go.Top, SOMATOM go.Fit, SOMATOM go.Sim, SOMATOM go.Open Pro, SOMATOM X.cite, SOMATOM X.ceed, NAEOTOM Alpha, Syngo Application SW_SYS	ANAP	FIXED
Device Serial Number	(0018,1000)	LO		ALWAYS	FIXED
Software Versions	(0018,1020)	LO	syngo CT VA40A syngo CT VA40A (\<product version of syngo Application Software>)	ALWAYS	FIXED
Gantry ID	(0018,1008)	LO		ALWAYS	FIXED
Spatial Resolution	(0018,1050)	DS		ALWAYS	FIXED
Date of Last Calibration	(0018,1200)	DA		ANAP	AUTO
Time of Last Calibration	(0018,1201)	TM		ANAP	AUTO
Pixel Padding Value	(0028,0120)	US		EMPTY	AUTO
Private Creator	(0029,00xx)	LO	SIEMENS CT EXAM EQUIPMENT	ALWAYS	FIXED

9.1.2.7 General Image Module Attributes

Table 9-8: General Image Module

DICOM Attribute Name	Tag	VR	Value	Presence of Value	Source
Instance Number	(0020,0013)	IS	0 for reference image	ALWAYS	AUTO
Content Date	(0008,0023)	DA		ALWAYS	AUTO
Content Time	(0008,0033)	TM		ALWAYS	AUTO
Acquisition Number	(0020,0012)	IS		ALWAYS	AUTO
Acquisition Date	(0008,0022)	DA		ALWAYS	AUTO
Acquisition Time	(0008,0032)	TM		ALWAYS	AUTO
Acquisition DateTime	(0008,002A)	DT		ALWAYS	AUTO
Referenced Image Sequence	(0008,1140)	SQ		ALWAYS	AUTO
>Referenced SOP Class UID	(0008,1150)	UI		ALWAYS	AUTO
>Referenced SOP Instance UID	(0008,1155)	UI		ALWAYS	AUTO
Images in Acquisition	(0020,1002)	IS		ALWAYS	AUTO
Image Comments	(0020,4000)	LT	e.g.”Automatic Result,	ALWAYS	USER

DICOM Attribute Name	Tag	VR	Value	Presence of Value	Source
			ME_70keV,Score9999,HD FoV,Artificial120, eDDensity" "60bpm, 75%, 400ms, TS" "Filter Sn" *Note:* ***Artificial120**: The resulting image values are proportional to the attenuation coefficient for a defined 120 kVp-like spectrum.* ***eDDensity**: Image values are proportional to electron density. (Electron density variant of DirectDensity)*		
Burned In Annotation	(0028,0301)	CS	NO	ALWAYS	FIXED
Lossy Image Compression	(0028,2110)	CS	00	ALWAYS	AUTO
Irradiation Event UID	(0008,3010)	UI		ALWAYS	COPY
Private Creator	(0029,00xx)	LO	SIEMENS CT EXAM IMAGE	ALWAYS	FIXED

9.1.2.8 Image Pixel Module Attributes

Table 9-9: Image Pixel Module

DICOM Attribute Name	Tag	VR	Value	Presence of Value	Source
Rows	(0028,0010)	US		ALWAYS	AUTO
Columns	(0028,0011)	US		ALWAYS	AUTO
Pixel Representation	(0028,0103)	US	0000H	ALWAYS	FIXED
Pixel Data	(7FE0,0010)	OB		ALWAYS	AUTO
Smallest Image Pixel Value	(0028,0106)	US		ALWAYS	AUTO
Largest Image Pixel Value	(0028,0107)	US		ALWAYS	AUTO

9.1.2.9 Image Plane Module Attributes

Table 9-10: Image Plane Module

DICOM Attribute Name	Tag	VR	Value	Presence of Value	Source
Pixel Spacing	(0028,0030)	DS		ALWAYS	AUTO
Image Orientation (Patient)	(0020,0037)	DS		ALWAYS	AUTO
Image Position (Patient)	(0020,0032)	DS		ALWAYS	AUTO
Slice Thickness	(0018,0050)	DS		ALWAYS	AUTO
Slice Location	(0020,1041)	DS		ALWAYS	AUTO
Private Creator	(0029,00xx)	LO	SIEMENS CT EXAM IMAGE	ALWAYS	FIXED

9.1.2.10 Contrast/Bolus Module Attributes

Table 9-11: Contrast Bolus Module

DICOM Attribute Name	Tag	VR	Value	Presence of Value	Source
Contrast/Bolus Agent	(0018,0010)	LO	NOTE: The type of used Contrast medium, or UNDEFINED if no Contrast medium is specified	ALWAYS	AUTO
Contrast/Bolus Volume	(0018,1041)	DS		ALWAYS	AUTO
Contrast/Bolus Start Time	(0018,1042)	TM		ALWAYS	AUTO
Contrast/Bolus Stop Time	(0018,1043)	TM		ALWAYS	AUTO
Contrast/Bolus Total Dose	(0018,1044)	DS	NOTE: Total amount in [mL]of the undiluted contrast agent - EXCLUDING Saline	ALWAYS	AUTO
Contrast Flow Rate	(0018,1046)	DS	Note: Multiple entries are possible (e.g. in case of e.g. multiphase injection protocols), Unit: [mL/s]	ALWAYS	AUTO
Contrast Flow Duration	(0018,1047)	DS	Note: Multiple entries are possible (e.g. in case of e.g. multiphase injection protocols), Unit: [s]	ALWAYS	AUTO
Contrast/Bolus Ingredient	(0018,1048)	CS	IODINE	ALWAYS	FIXED
Contrast/Bolus Ingredient Concentration	(0018,1049)	DS	Note: [mg] of active ingredient per [mL] of (diluted) agent	ALWAYS	AUTO

9.1.2.11 CT Image Module Attributes

Table 9-12: CT Image Module

DICOM Attribute Name	Tag	VR	Value	Presence of Value	Source
Image Type	(0008,0008)	CS	See Image Type Values	ALWAYS	AUTO
Samples per Pixel	(0028,0002)	US	1	ALWAYS	FIXED
Photometric Interpretation	(0028,0004)	CS	MONOCHROME2	ALWAYS	FIXED
Bits Allocated	(0028,0100)	US	16	ALWAYS	FIXED
Bits Stored	(0028,0101)	US	16	ALWAYS	FIXED
High Bit	(0028,0102)	US	15	ALWAYS	FIXED
Rescale Intercept	(0028,1052)	DS	-8192	ALWAYS	AUTO
Rescale Slope	(0028,1053)	DS	1	ALWAYS	AUTO
Rescale Type	(0028,1054)	LO		ALWAYS	AUTO
KVP	(0018,0060)	DS		ALWAYS	AUTO
Acquisition Number	(0020,0012)	IS		ALWAYS	AUTO
Scan Options	(0018,0022)	CS	contains cardiac or respiratory information, from Original if original is a CT image, not set in case original is an XR3D or Enhanced CT image	ANAP	AUTO
Data Collection Diameter	(0018,0090)	DS		ALWAYS	AUTO
Reconstruction Diameter	(0018,1100)	DS		ALWAYS	AUTO
Distance Source to Detector	(0018,1110)	DS		ALWAYS	AUTO
Distance Source to Patient	(0018,1111)	DS		ALWAYS	AUTO

DICOM Attribute Name	Tag	VR	Value	Presence of Value	Source
Gantry/Detector Tilt	(0018,1120)	DS		ALWAYS	AUTO
Table Height	(0018,1130)	DS		ALWAYS	AUTO
Rotation Direction	(0018,1140)	CS		ANAP	AUTO
Exposure Time	(0018,1150)	IS		ALWAYS	AUTO
X-Ray Tube Current	(0018,1151)	IS		ALWAYS	AUTO
Exposure	(0018,1152)	IS	Product of X-Ray Tube Current and Exposure Time. Unit is [mAs].	ALWAYS	AUTO
Filter Type	(0018,1160)	SH	SN_DE, SN_DESF, AU_DESF, AUSN_DESF, SN_LD, W1, W12	ALWAYS	AUTO
Generator Power	(0018,1170)	IS		ALWAYS	AUTO
Focal Spot(s)	(0018,1190)	DS		ALWAYS	AUTO
Convolution Kernel	(0018,1210)	SH	e.g. "Sd, Sa" *Note: Sd for eDDensity, Sa for Artifical120* *Note:* ***Artificial120**: The resulting image values are proportional to the attenuation coefficient for a defined 120 kVp-like spectrum.* ***eDDensity**: Image values are proportional to electron density. (Electron density variant of DirectDensity)*	ALWAYS	AUTO
Single Collimation Width	(0018,9306)	FD		ALWAYS	AUTO
Total Collimation Width	(0018,9307)	FD		ALWAYS	AUTO
Table Speed	(0018,9309)	FD		ANAP	AUTO
Table Feed per Rotation	(0018,9310)	FD		ANAP	AUTO
Spiral Pitch Factor	(0018,9311)	FD		ANAP	AUTO
Exposure Modulation Type	(0018,9323)	CS	OFF_OFF, OFF_OFF_MINDO, OFF_OFF_PULS, OFF_MAC, OFF_MAC_MINDO, OFF_MAC_PULS, OFF_ZEC, OFF_ZEC_MINDO, OFF_ZEC_PULS, SHAPE_OFF, SHAPE_OFF_MINDO, SHAPE_OFF_PULS, SHAPE_MAC, SHAPE_MAC_MINDO, SHAPE_MAC_PULS, SHAPE_ZEC, SHAPE_ZEC_MINDO, SHAPE_ZEC_PULS, SINOD_OFF, SINOD_OFF_MINDO, SINOD_OFF_PULS, SINOD_MAC, SINOD_MAC_MINDO, SINOD_MAC_PULS, SINOD_ZEC, SINOD_ZEC_MINDO, SINOD_ZEC_PULS, ELLIP_OFF,	ALWAYS	AUTO

DICOM Attribute Name	Tag	VR	Value	Presence of Value	Source
			ELLIP_OFF_MINDO, ELLIP_OFF_PULS, ELLIP_MAC, ELLIP_MAC_MINDO, ELLIP_MAC_PULS, ELLIP_ZEC, ELLIP_ZEC_MINDO, ELLIP_ZEC_PULS, XCARE_OFF, XCARE_OFF_MINDO, XCARE_OFF_PULS, XCARE_MAC, XCARE_MAC_MINDO, XCARE_MAC_PULS, XCARE_ZEC,XCARE_ZEC_MINDO, XCARE_ZEC_PULS		
CTDIvol	(0018,9345)	FD		ANAP	AUTO
Calcium Scoring Mass Factor Device Attribute	(0018,9352)	FL		ANAP	FIXED
Energy Weighting Factor	(0018,9353)	FL		ANAP	AUTO
CT Additional X-Ray Source Sequence	(0018,9360)	SQ	Not present if Multi-energy CT Acquisition (0018,9361) is YES (Supplement 188)	ANAP	AUTO
>Focal Spot(s)	(0018,1190)	DS		ANAP	AUTO
>Energy Weighting Factor	(0018,9353)	FL		ANAP	AUTO
Multi-energy CT Acquisition	(0018,9361)	CS	YES NO	ANAP	FIXED
Private Creator	(0029,00xx)	LO	SIEMENS CT EXAM IMAGE	ALWAYS	FIXED

9.1.2.11.1 Image Type Values

- Value 1 identifies the Pixel Data Characteristics; Enumerated Values for the Pixel Data Characteristics are:
  - ORIGINAL: Identifies an Original Image
  - DERIVED: Identifies a Derived Image
- Value 2 identifies the Patient Examination Characteristics; Enumerated Values for the Patient Examination Characteristics are:
  - PRIMARY: Identifies a Primary Image
  - SECONDARY: Identifies a Secondary Image
- Value 3 identifies any Image IOD-specific specialization. The following terms are defined in addition to the DICOM standard definitions:
  - AXIAL: identifies a CT cross-sectional image
  - LOCALIZER: identifies a CT Localizer Image
  - OTHER: Converted non-Axial and non-Localizer CT images
    Note: AXIAL in this context means any cross-sectional image, and includes transverse, coronal, sagittal and oblique images.
- Value 4 is implementation specific:
  - CT_SOM5 RTD: identifies a Real Time Display Image
  - CT_SOM5 MIP: identifies a Maximum Intensity Projection image created by a CT application of a non-fix-axial Spiral Range
  - CT_SOM5 MPR: identifies Multi Planar Reconstruction image created by a CT application of non-fix-axial Spiral range
  - CT_SOM5 MON: identifies an image of a Monitoring or Premonitoring range
  - CT_SOM5 SEQ: identifies an image of a Sequence range
  - CT_SOM10 DEMIX: identifies mixed reconstructions out of two energy spectra
  - CT_SOM10 DEMEP: identifies Monoenergetic reconstructions out of two energy spectra

- CT_SOM10 DEVNC: identifies VNC or Iodine reconstructions out of two energy spectra
- CT_SOM5 SPI: identifies an image of a fix-axial Spiral range
- 4D SPI: identifies an image of a ZigZag range
- CT_SOM5 TOP: identifies an image of a Topogram range
- CT_SOM5 ROT: identifies an image of a ROT range
- CT_SOM5 STA: identifies an image of a Static range
- CSA BLACK IMAGE: identifies an SC Image with black pixels; only graphics information is of interest
- CT_SOM PROT: identifies an SC Image with black pixels; only graphics information is of interest
- FLU: identifies an image of a fluoroscopy range
- CT_SOM_ECGDOC: identifies an ECG documentation image
- MPR: identifies Multi Planar Reconstruction image
- MIP: identifies Maximum Intensity Projection image
- MINIP: identifies Minimum Intensity Projection
- CT_SOM8 DESPR: identifies Stopping Power Ratio (SPR) images
- SYNCT_HEAD: identifies Synthetic CT image (Head)
- SYNCT_PELVIS: identifies Synthetic CT image (Pelvis)

- Value 5 is specific to the Somaris/10 products
  - STD: Standard image of corresponding Type as given in value 4.
  - OTOM: Osteo Scanned Tomogram
  - OTOP: Osteo Scanned Topogram
  - PMON: Premonitoring Scan
  - TESTBOLUS: Testbolus Scan
  - RECON REFERENCE: identifies an image containing overlay graphics indicating the location of recon slices.
  - RANGE REFERENCE: identifies an image containing overlay graphics indicating the area of a scan range.
  - ME<energy>KEV: Mono-Energetic Image
  - VNC: Virtual Non-Contrast Image
  - IOD: Iodine Enhancement Image
  - IMD: Iodine Concentration Image
  - MIX: mixed reconstructions out of two energy spectra
  - L: Image out of low energy
  - H: Image out of high energy
  - PARALLEL: Range type for parallel ranges (for syngo application)
  - RADIAL: Range type for radial ranges (for syngo application)
  - CURVED: Range type for radial ranges (for syngo application)
  - SPR: identifies Stopping Power Ratio (SPR) images
- Value 6 is specific to dual energy acquisitions. The following terms are defined:
  - DE_TB: split filter dual energy range.
  - DE_2SPI: dual spiral dual energy range.
  - SNRG: Single energy
- Value 7 is specific to reconstruction of dual energy acquisitions. The following terms are defined:
  - MPR: Multi Planar Reconstruction image for mixed/Mono-energetic/VNC/Iodine reconstruction
  - MIP THIN: Maximum Intensity Projection image for mixed/Mono-energetic/VNC/Iodine reconstruction
  - CONVCT: Conventional CT image

9.1.2.11.2 Image Type Values for Multi-Energy (Supplement 188)

- Value 4 identifies a Multi-Energy CT Image and is added after Value 3 of a Singler-Energy CT Image. It is only present if Multi-energy CT Acquisition (0018,9361) has a value of YES (see also Value 4 of Single-Energy CT Images in 9.1.2.11.1)
  - VMI identifies a Virtual Monochromatic Image
  - MAT_SPECIFIC identifies a Material-Specific Image
  - MAT_REMOVED identifies a Material-Removed Image
  - THRESHOLD

  - ENERGY_PROP_WT
- Value 5 is implementation specific (see also Value 4 of Single-Energy CT Images in 9.1.2.11.1)
  - CT_SOM10 DET3D: Threshold image
  - CT_SOM10 DEVCR: Vascular Calcium Removal image
  - CT_SOM10 DEQUAD: Quadruple
- Value 6 is implementation specific
  - ME<energy>KEV: Mono-Energetic Image
  - T1
  - PMON: Premonitoring Scan
  - VNC: Virtual Non-Contrast Image
  - IOD: Iodine Enhancement Image
  - IMD: Iodine Concentration Image
  - VCR<energy>KEV
- Value 7
  - COUNT: Single Source Counting
  - COUNT_2SRC: Dual Source Counting
- Value 8
  - MPR: Multi Planar Reconstruction image for mixed/Mono-energetic/VNC/Iodine reconstruction
  - CONVCT: Conventional CT image
  - SPP: Spectral Post-Processing data is included

9.1.2.11.3 Rescale Type

- HU used for Hounsfield Units
- Z_EFF used for Effective Atomic Number
- ED used for Electron Density
- EDW used for normalized Electron Density

9.1.2.11.4 Rescale Type Values for Multi-Energy (Supplement 188)

- MGML used for Material density
- HU_MOD used for Modified Hounsfield Unit

9.1.2.12 Overlay Plane Module Attributes

Table 9-13: Overlay Plane Module

DICOM Attribute Name	Tag	VR	Value	Presence of Value	Source
Overlay Rows	(60xx,0010)	US		ALWAYS	AUTO
Overlay Columns	(60xx,0011)	US		ALWAYS	AUTO
Overlay Type	(60xx,0040)	CS		ALWAYS	AUTO
Overlay Origin	(60xx,0050)	SS		ALWAYS	AUTO
Overlay Bits Allocated	(60xx,0100)	US	1	ALWAYS	FIXED
Overlay Bit Position	(60xx,0102)	US	0	ALWAYS	FIXED
Overlay Data	(60xx,3000)	OB		ALWAYS	AUTO
Number of Frames in Overlay	(60xx,0015)	IS	1	ALWAYS	FIXED
Overlay Description	(60xx,0022)	LO		ALWAYS	EMPTY
Overlay Subtype	(60xx,0045)	LO	AUTOMATED	ALWAYS	AUTO
ImageFrameOrigin	(60xx,0051)	US	1	ALWAYS	FIXED
Overlay Label	(60xx,1500)	LO		ALWAYS	EMPTY

CT Images with overlay graphics created by the system are implementing the "Multi-frame Overlay Module" in addition to the "Overlay Plane Module".
That means such images can contain the DICOM Tag (60xx,0015) "Number of Frames in Overlay" even they are no Multi-frame images. The value of the DICOM Tag is always "1".

9.1.2.13 VOI LUT Module Attributes

Table 9-14: VOI LUT Module

DICOM Attribute Name	Tag	VR	Value	Presence of Value	Source
Window Center	(0028,1050)	DS		ALWAYS	AUTO
Window Width	(0028,1051)	DS		ALWAYS	AUTO
Window Center & Width Explanation	(0028,1055)	LO		ALWAYS	AUTO
VOI LUT Sequence	(0028,3010)	SQ	from Original	ANAP	AUTO

9.1.2.14 SOP Common Module Attributes

Table 9-15: SOP Common Module

DICOM Attribute Name	Tag	Type	Value	Presence of Value	Source
SOP Class UID	(0008,0016)	UI	1.2.840.10008.5.1.4.1.1.2	ALWAYS	FIXED
SOP Instance UID	(0008,0018)	UI		ALWAYS	AUTO
Specific Character Set	(0008,0005)	CS		ALWAYS	AUTO
Timezone Offset From UTC	(0008,0201)	SH		ALWAYS	AUTO

9.1.2.15 Multi-energy CT Image Module

The Multi-energy CT Image Module is only present if Multi-energy CT Acquisition (0018,9361) has a value of YES.

Table 9-16: Multi-energy CT Image Module

DICOM Attribute Name	Tag	Type	Value	Presence of Value	Source
Multi-energy CT Acquisition Sequence	(0018,9362)	SQ		ALWAYS	AUTO
>Multi-energy Acquisition Description	(0018,937B)	UT	TWINBEAM DUAL SPIRAL COUNTING	ALWAYS	AUTO
>Multi-energy CT X-Ray Source Sequence	(0018,9365)	SQ		ALWAYS	AUTO
>>X-Ray Source Index	(0018,9366)	US		ALWAYS	AUTO
>>X-Ray Source ID	(0018,9367)	UC		ALWAYS	AUTO
>>Multi-energy Source Technique	(0018,9368)	CS	CONSTANT_SOURCE	ALWAYS	FIXED
>>Source Start DateTime	(0018,9369)	DT		ALWAYS	AUTO
>>Source End DateTime	(0018,936A)	DT		ALWAYS	AUTO
>>Generator Power	(0018,1170)	IS		ALWAYS	AUTO

>CT Exposure Sequence	(0018,9321)	SQ		ALWAYS	AUTO
>>Referenced X-Ray Source Index	(0018,9377)	US		ALWAYS	AUTO
>>Estimated Dose Saving	(0018,9324)	FD		ALWAYS	EMPTY
>>Exposure Time in ms	(0018,9328)	FD		ALWAYS	AUTO
>>X-Ray Tube Current in mA	(0018,9330)	FD		ALWAYS	AUTO
>>Exposure in mAs	(0018,9332)	FD		ALWAYS	AUTO
>>CTDIvol	(0018,9345)	FD		ALWAYS	AUTO
>> Exposure Modulation Type	(0018,9323)	CS	ELLIP_ZEC (longitudinal and angular modulation)	ALWAYS	AUTO
>> CTDI Phantom Type Code Sequence		SQ		ALWAYS	AUTO
>>> Coding Scheme Designator	(0008,0102)	SH		ALWAYS	AUTO
>>> Coding Scheme Version	(0008,0103)	SH		ALWAYS	AUTO
>>> Code Meaning	(0008,0104)	SH		ALWAYS	AUTO
>Multi-energy CT X-Ray Detector Sequence	(0018,936F)	SQ		ALWAYS	AUTO
>> X-Ray Detector Index	(0018,9370)	UC		ALWAYS	AUTO
>> X-Ray Detector ID	(0018,9371)	US		ALWAYS	AUTO
>> Multi-energy Detector Type	(0018,9372)	CS	INTEGRATING PHOTON_COUNTING	ALWAYS	AUTO
>> Nominal Max Energy	(0018,9374)	DS		ANAP	AUTO
>> Nominal Min Energy	(0018,9375)	DS		ANAP	AUTO
>Multi-energy CT Path Sequence	(0018,9379)	SQ		ALWAYS	AUTO
>> Multi-energy CT Path Index	(0018,937A)	US		ALWAYS	AUTO
>> Referenced X-Ray Source Index	(0018,9377)	US		ALWAYS	AUTO
>>Referenced X-Ray Detector Index	(0018,9376)	US		ALWAYS	AUTO
>CT Acquisition Details Sequence	(0018,9304)	SQ		ALWAYS	AUTO
>> Referenced Path Index	(0018,9378)	US		ALWAYS	AUTO
>> Rotation Direction	(0018,1140)	CS		ALWAYS	AUTO
>> Revolution Time	(0018,9305)	FD		ALWAYS	AUTO
>> Single Collimation Width	(0018,9306)	FD		ALWAYS	AUTO
>> Total Collimation Width	(0018,9307)	FD		ALWAYS	AUTO
>> Table Height	(0018,1130)	DS		ALWAYS	AUTO
>> Gantry/Detector Tilt	(0018,1120)	DS		ALWAYS	AUTO
>> Data Collection Diameter	(0018,0090)	DS		ALWAYS	AUTO

> CT X-Ray Details Sequence	(0018,9325)	SQ		ALWAYS	AUTO
KVP	(0018,0060)	DS		ALWAYS	AUTO
>> Referenced Path Index	(0018,9378)	US		AWAYS	AUTO
>> Filter Material	(0018,7050)	CS	ALUMINIUM MIXED	ALWAYS	AUTO
>>Focal Spot(s)	(0018,1190)	DS		ANAP	AUTO
>>Energy Weighting Factor	(0018,9353)	FL		ANAP	AUTO
> CT Geometry Sequence	(0018,9312)	SQ		ALWAYS	AUTO
>> Referenced Path Index	(0018,9378)	US		ALWAYS	AUTO
>> Distance Source to Detector	(0018,1110),	DS		ALWAYS	AUTO
>> Distance Source to Data Collection Center	(0018,9335)	FD		ALWAYS	AUTO
Multi-energy CT Processing Sequence	(0018,9363)	SQ		ANAP	AUTO
> Decomposition Method	(0018,937E)	CS	PROJECTION_BASED IMAGE_BASED HYBRID	ALWAYS	AUTO
> Decomposition Description	(0018,937F)	UT	None Iodine/Water Calcium/Iodine	ALWAYS	AUTO
Multi-energy CT Characteristics Sequence	(0018,9364)	SQ		ANAP	AUTO
> Monoenergetic Energy Equivalent	(0018,937C)	FD		ALWAYS	AUTO
> Derivation Algorithm Sequence	(0022,1612)	SQ		ALWAYS	AUTO
>> Algorithm Family Code Sequence	(0066,002F)	SQ		ALWAYS	AUTO
>>Algorithm Name	(0066,0036)	LS	Monoenergetic Plus Virtual Unenhanced Vascular Calcium Removal	ALWAYS	AUTO
>>Algorithm Version	(0066,0031)	LS		ANAP	AUTO
>>Algorithm Source	(0024,0202)	LS	SIEMENS HEALTHINEERS	ALWAYS	FIXED
> Performed Processing Parameters Sequence	(0074,1212)	SQ		ALWAYS	AUTO
>> Value Type	(0040, A040)	CS		ALWAYS	AUTO
>> Concept Name Code Sequence	(0040, A043)	SQ		ALWAYS	AUTO
>>> Coding Scheme Designator	(0008,0102)	SH	DCM	ALWAYS	FIXED
>>> Code Value	(0008,0100)	SH	123108	ALWAYS	FIXED
>>> Code Meaning	(0008,0104)		Multispectral Processing	ALWAYS	FIXED
>> Text Value	(0040, A160)	UT		ANAP	AUTO

9.1.3 Raw Data Storage SOP Class

Table 9-17: IOD of created Raw Data Storage SOP Class Instances

IE	Module	Reference	Usage
Patient	Patient	Table 9-2	ALWAYS
Study	General Study	Table 9-3	ALWAYS
	Patient Study	Table 9-4	CONDITIONAL
Series	General Series	Table 9-18	ALWAYS
Frame of Reference	Frame of Reference	Table 9-6	ALWAYS
Equipment	General Equipment	Table 9-7	ALWAYS
Raw Data	Acquisition Context	Table 9-19	ALWAYS
	Raw Data	Table 9-20	ALWAYS
	SOP Common	Table 9-22	ALWAYS
	Scan Range Data	Table 9-21	ALWAYS

9.1.3.1 General Series Module Attributes

Table 9-18: General Series Module

DICOM Attribute Name	Tag	VR	Value	Presence of Value	Source
Modality	(0008,0060)	CS	CT	ALWAYS	FIXED
Series Instance UID	(0020,000E)	UI		ALWAYS	AUTO
Series Number	(0020,0011)	IS		ALWAYS	AUTO
Series Date	(0008,0021)	DA	<yyyymmdd>	ALWAYS	AUTO
Series Time	(0008,0031)	TM	<hhmmss.ffffff>	ALWAYS	AUTO
Protocol Name	(0018,1030)	LO		ANAP	USER

9.1.3.2 Acquisition Context Module Attributes

Table 9-19: Acquisition Context Module

DICOM Attribute Name	Tag	VR	Value	Presence of Value	Source
Acquisition Context Sequence	(0040,0555)	SQ		EMPTY	AUTO

9.1.3.3 Raw Data Module Attributes

Table 9-20: Raw Data Module

Attribute Name	Tag	VR	Value	Presence of Value	Source
Instance Number	(0020,0013)	IS		VNAP	AUTO
Content Date	(0008,0023)	DA		ALWAYS	AUTO
Content Time	(0008,0033)	TM		ALWAYS	AUTO
Creator-Version UID	(0008,9123)	UI		ALWAYS	AUTO
Private Creator	(0029,00xx)	LO	SIEMENS CT EXAM RAWDATA	ALWAYS	FIXED

9.1.3.4 Scan Range Data Module Attributes

Table 9-21: Scan Range Data Module

DICOM Attribute Name	Tag	VR	Attribute Description	Presence of Value	Source
Private Creator	(0029,00xx)	LO	SIEMENS CT EXAM SCANRANGE-DATA	ALWAYS	AUTO

9.1.3.5 SOP Common Module Attributes

Table 9-22: SOP Common Module

DICOM Attribute Name	Tag	Type	Value	Presence of Value	Source
SOP Class UID	(0008,0016)	UI	1.2.840.10008.5.1.4.1.1.66	ALWAYS	FIXED
SOP Instance UID	(0008,0018)	UI		ALWAYS	AUTO
Specific Character Set	(0008,0005)	CS		ALWAYS	AUTO
Timezone Offset From UTC	(0008,0201)	SH		ALWAYS	AUTO

9.1.4 Secondary Capture Storage SOP Class

Table 9-23: IOD of created Secondary Capture Storage SOP Class Instances

IE	Module	Reference	Usage
Patient	Patient	Table 9-2	ALWAYS
Study	General Study	Table 9-3	ALWAYS
	Patient Study	Table 9-4	CONDITIONAL
Series	General Series	Table 9-24	ALWAYS
Equipment	General Equipment	Table 9-7	CONDITIONAL
	SC Equipment	Table 9-30	ALWAYS
Image	General Image	Table 9-27	ALWAYS
	Image Pixel	Table 9-28	ALWAYS
	SC Image	Table 9-31	ALWAYS
	Overlay Plane	Table 9-32	CONDITIONAL
	SOP Common	Table 9-33	ALWAYS

9.1.4.1 General Series Module Attributes

Table 9-24: General Series Module

DICOM Attribute Name	Tag	VR	Value	Presence of Value	Source
Modality	(0008,0060)	CS	CT	ALWAYS	FIXED
Series Instance UID	(0020,000E)	UI		ALWAYS	AUTO
Series Number	(0020,0011)	IS	e.g. 940 for Ranges, 970 for all other Captured Projection objects (Captured Projection Image) 980 (Bookmarks)	ALWAYS	AUTO

DICOM Attribute Name	Tag	VR	Value	Presence of Value	Source
Series Date	(0008,0021)	DA	<yyyymmdd>	ALWAYS	AUTO
Series Time	(0008,0031)	TM	<hhmmss.ffffff>	ALWAYS	AUTO
Protocol Name	(0018,1030)	LO	"Radial Ranges", "Parallel Ranges", "Volume Ranges", "Curved Ranges" or from Original, Book-mark	ANAP	USER AUTO
Series Description	(0008,103E)	LO	e.g. „eDDensity, Artifical120" *Note:* ***Artificial120**: The resulting image values are proportional to the attenuation coefficient for a defined 120 kVp-like spectrum.* ***eDDensity**: Image values are proportional to electron density. (Electron density variant of DirectDensity)*	ANAP	USER
Request Attributes Sequence	(0040,0275)	SQ		ALWAYS	AUTO
>Scheduled Procedure Step Description	(0040,0007)	LO	from Original	ANAP	AUTO
>Scheduled Procedure Step ID	(0040,0009)	SH	from Original	ANAP	AUTO
>Requested Procedure ID	(0040,1001)	SH		ALWAYS	MWL
>Reason For The Requested Procedure	(0040,1002)	LO	from Original	ANAP	AUTO
>Accession Number	(0008,0050)	SH		ALWAYS	MWL
>Study Instance UID	(0020,000D)	UI		ALWAYS	AUTO
>Scheduled Procedure Step ID	(0040,0009)	SH		ALWAYS	MWL
Performed Procedure Step ID	(0040,0253)	SH		ALWAYS	MWL
Performed Procedure Step Start Date	(0040,0244)	DA		ALWAYS	MWL
Performed Procedure Step Start Time	(0040,0245)	TM		ALWAYS	MWL
Performed Procedure Step Description	(0040,0254)	LO		ALWAYS	MWL
Comments on the Performed Procedure Step	(0040,0280)	ST	from Original	ANAP	AUTO
Performing Physician's Name	(0008,1050)	PN		ALWAYS	MWL
Operators' Name	(0008,1070)	PN		ALWAYS	MWL
Related Series Sequence	(0008,1250)	SQ	from Original	ANAP	AUTO
>Study Instance UID	(0020,000D)	UI	from Original	ALWAYS	AUTO
>Series Instance UID	(0020,000E)	UI	from Original	ALWAYS	AUTO
>Purpose of Reference Code Sequence	(0040,A170)	SQ	<zero length>	EMPTY	AUTO
Body Part Examined	(0018,0015)	CS	from Original	ANAP	AUTO

9.1.4.2 General Reference Module Attributes

Table 9-25: General Reference Module

DICOM Attribute Name	Tag	VR	Value	Presence of Value	Source
Derivation Description	(0008,2111)	ST	from Original	ANAP	AUTO
Source Image Sequence	(0008,2112)	SQ	if derived from single image	ANAP	AUTO

9.1.4.3 General Equipment Module Attributes

Table 9-26: General Equipment Module

DICOM Attribute Name	Tag	VR	Value	Presence of Value	Source
Modality	(0008,0060)	CS	OT or XA or CT (default = OT, can be configured) (Captured Projection Image) XA (Bookmarks)	ALWAYS	AUTO, CONFIG
Secondary Capture Device Manufacturer	(0018,1016)	LO	“Siemens”	ALWAYS	AUTO
Secondary Capture Device Manufacturer’s Model Name	(0018,1018)	LO	“syngo_Application_SW_SYS”	ALWAYS	AUTO
Secondary Capture Device Software Version	(0018,1019)	LO		ALWAYS	AUTO

9.1.4.4 General Image Module Attributes

Table 9-27: General Image Module

DICOM Attribute Name	Tag	VR	Value	Presence of Value	Source
Instance Number	(0020,0013)	IS	0 for Reference Image	ALWAYS	AUTO
Content Date	(0008,0023)	DA	<yyyymmdd>	ALWAYS	AUTO
Content Time	(0008,0033)	TM	<hhmmss.ffffff>	ALWAYS	AUTO
Image Type	(0008,0008)	CS	See Image Type Values	ALWAYS	AUTO
Patient Orientation	(0020,0020)	CS	from original (derived from single image) or calculated or <zero length> (derived from multiple images).	ALWAYS	USER

9.1.4.4.1 Image Type Values of Captures Projection Images

- Value 1 identifies the Pixel Data Characteristics; Enumerated Values for the Pixel Data Characteristics are:
  - DERIVED: Identifies a Derived Image
- Value 2 identifies the Patient Examination Characteristics; Enumerated Values for the Patient Examination Characteristics are:
  - SECONDARY: Identifies a Secondary Image
- Value 3 identifies any Image IOD-specific specialization. The following terms are defined in addition to the DICOM standard definitions:

  - OTHER: Converted non-Axial and non-Localizer CT images
    Note: AXIAL in this context means any cross-sectional image, and includes transverse, coronal, sagittal and oblique images.
- Value 4 is implementation specific:
  - IAE_PRJ
- Value 5 identifies the filter type
  - MPR: identifies Multi Planar Reconstruction images
  - MPR_CV: identifies Multi Planar Reconstruction (curved cut) images
  - MIP: identifies Maximum Intensity Projection images
  - MIP_CV: identifies Maximum Intensity Projection (curved cut) images
  - MINIP: identifies Maximum Intensity Projection images
  - OVERVIEW

9.1.4.4.2 Image Type Values of Bookmarks

- DERIVED\SECONDARY\OTHER\IAE_BOOKMARK

9.1.4.5 Image Pixel Module Attributes

Table 9-28: Image Pixel Module

DICOM Attribute Name	Tag	VR	Value	Presence of Value	Source
Samples per Pixel	(0028,0002)	US	1 (grayscale image) 3 (RGB images)	ALWAYS	FIXED
Photometric Interpretation	(0028,0004)	CS	MONOCHROME2 (grayscale image) RGB (RGB images)	ALWAYS	FIXED
Rows	(0028,0010)	US	512	ALWAYS	FIXED
Columns	(0028,0011)	US	512	ALWAYS	FIXED
Bits Allocated	(0028,0100)	US	16 (grayscale image) 8 (RGB images)	ALWAYS	FIXED
Bits Stored	(0028,0101)	US	12 (grayscale image) 8 (RGB images)	ALWAYS	FIXED
High Bit	(0028,0102)	US	11 (grayscale image) 7 (RGB images)	ALWAYS	FIXED
Pixel Representation	(0028,0103)	US	0000H	ALWAYS	FIXED
Pixel Data	(7FE0,0010)	OB		ALWAYS	AUTO
Planar Configuration	(0028,0006)	US	0	Only if Samples per pixel > 1	FIXED

9.1.4.6 Image Plane Module Attributes

Table 9-29: Image Plane Module

DICOM Attribute Name	Tag	VR	Value	Presence of Value	Source
Pixel Spacing	(0028,0030)	DS	If image has been calibrated	ANAP	AUTO

9.1.4.7 SC Equipment Module Attributes

Table 9-30: SC Equipment Module

DICOM Attribute Name	Tag	VR	Value	Presence of Value	Source
Conversion Type	(0008,0064)	CS	DF;WSD	ALWAYS	FIXED
Modality	(0008,0060)	CS	CT	ALWAYS	FIXED
Secondary Capture Device ID	(0018,1010)	LO		ALWAYS	AUTO
Secondary Capture Device Manufacturer	(0018,1016)	LO	Siemens	ALWAYS	COPY
Secondary Capture Device Manufacturer's Model Name	(0018,1018)	LO	see Manufacturers Model name	ALWAYS	COPY
Secondary Capture Device Software Versions	(0018,1019)	LO		ALWAYS	COPY

9.1.4.8 SC Image Module Attributes

Table 9-31: SC Image Module

DICOM Attribute Name	Tag	VR	Value	Presence of Value	Source
Date of Secondary Capture	(0018,1012)	DA	The date the Secondary Capture Image was captured. <yyyymmdd>	ALWAYS	AUTO
Time of Secondary Capture	(0018,1014)	TM	The time the Secondary Capture Image was captured.	ALWAYS	AUTO
Pixel Spacing Calibration Type	(0028,0A02)	CS	from Original	ANAP	AUTO
Pixel Spacing Calibration Description	(0028,0A04)	LO	from Original	ANAP	AUTO

9.1.4.9 Overlay Plane Module Attributes

Table 9-32: Overlay Plane Module

DICOM Attribute Name	Tag	VR	Value	Presence of Value	Source
Overlay Rows	(60xx,0010)	US	512	ALWAYS	FIXED
Overlay Columns	(60xx,0011)	US	512	ALWAYS	FIXED
Overlay Type	(60xx,0040)	CS	G	ALWAYS	FIXED
Overlay Origin	(60xx,0050)	SS	1,1	ALWAYS	FIXED
ImageFrameOrigin	(60xx,0051)	US	1	ALWAYS	FIXED
Overlay Bits Allocated	(60xx,0100)	US	1	ALWAYS	FIXED
Overlay Bit Position	(60xx,0102)	US	0	ALWAYS	FIXED
Overlay Data	(60xx,3000)	OB		ALWAYS	AUTO
Number of Frames in Overlay	(60xx,0015)	IS	1	ALWAYS	FIXED

Secondary Captures with overlay graphics created by the system are implementing the "Multi-frame Overlay Module" in addition to the "Overlay Plane Module".

That means such images can contain the DICOM Tag (60xx,0015) "Number of Frames in Overlay" even they are no Multi-frame images. The value of the DICOM Tag is always "1".

9.1.4.10 SOP Common Module Attributes

Table 9-33: SOP Common Module

DICOM Attribute Name	Tag	Type	Value	Presence of Value	Source
Instance Creation Date	(0008,0012)	DA	<yyyymmdd>	ALWAYS	AUTO
Instance Creation Time	(0008,0013)	TM	<hhmmss.ffffff>	ALWAYS	AUTO
Instance Creator UID	(0008,0014)	UI	<implementation_class_uid>.<individual_id>	ALWAYS	AUTO
SOP Class UID	(0008,0016)	UI	1.2.840.10008.5.1.4.1.1.7	ALWAYS	FIXED
SOP Instance UID	(0008,0018)	UI		ALWAYS	AUTO
Specific Character Set	(0008,0005)	CS		ALWAYS	AUTO
Timezone Offset From UTC	(0008,0201)	SH		ALWAYS	AUTO

9.1.5 X-Ray Radiation Dose Report Storage SOP Class

Table 9-34: IOD of created X-Ray Radiation Dose Report Storage SOP Class Instances

IE	Module	Reference	Usage
Patient	Patient	Table 9-2	ALWAYS
Study	General Study	Table 9-3	ALWAYS
Series	SR Document Series	Table 9-35	ALWAYS
Equipment	General Equipment	Table 9-7	ALWAYS
	Enhanced General Equipment	Table 9-36	ALWAYS
Document	SR Document General	Table 9-37	ALWAYS
	SR Document Content	Table 9-38	ALWAYS
	SOP Common	Table 9-39	ALWAYS

9.1.5.1 SR Document Series Module Attributes

Table 9-35: SR Document Series Module

DICOM Attribute Name	Tag	VR	Value	Presence of Value	Source
Modality	(0008,0060)	CS	SR	ALWAYS	FIXED
Series Instance UID	(0020,000E)	UI		ALWAYS	AUTO
Series Number	(0020,0011)	IS		ALWAYS	AUTO
Series Date	(0008,0021)	DA		ALWAYS	AUTO
Series Time	(0008,0031)	TM		ALWAYS	AUTO
Series Description	(0008,103E)	LO		ALWAYS	AUTO

9.1.5.2 Enhanced General Equipment Module Attributes

Table 9-36: Enhanced General Equipment Module

DICOM Attribute Name	Tag	VR	Value	Presence of Value	Source
Manufacturer	(0008,0070)	LO	SIEMENS Healthineers	ALWAYS	COPY
Manufacturer's Model Name	(0008,1090)	LO	SOMATOM go.Now, SOMATOM go.Up, SOMATOM go.All, SOMATOM go.Top, SOMATOM go.Fit, SOMATOM go.Sim, SOMATOM go.Open Pro, SOMATOM X.cite, SOMATOM X.ceed, NAEOTOM Alpha	ANAP	COPY
Device Serial Number	(0018,1000)	LO		ALWAYS	COPY
Software Versions	(0018,1020)	LO	syngo CT VA40A	ALWAYS	COPY

9.1.5.3 SR Document General Module Attributes

Table 9-37: SR Document General Module

DICOM Attribute Name	Tag	VR	Value	Presence of Value	Source
Instance Number	(0020,0013)	IS	1	ALWAYS	FIXED
Completion Flag	(0040,A491)	CS	COMPLETE	ALWAYS	FIXED
Verification Flag	(0040,A493)	CS	UNVERIFIED	ALWAYS	FIXED
Content Date	(0008,0023)	DA		ALWAYS	AUTO
Content Time	(0008,0033)	TM		ALWAYS	AUTO

9.1.5.4 SR Document Content Module Attributes

Table 9-38: SR Document Content Module

DICOM Attribute Name	Tag	VR	Value	Presence of Value	Source
Value Type	(0040,A040)	CD	CONTAINER	ALWAYS	FIXED
Concept Name Code Sequence	(0040,A043)	SQ		ALWAYS	AUTO
>Code Value	(0008,0100)	SH	113701	ALWAYS	FIXED
>Coding Scheme Designator	(0008,0102)	SH	DCM	ALWAYS	FIXED
>Code Meaning	(0008,0104)	LO	X-Ray Radiation Dose Report	ALWAYS	FIXED
Continuity of Content	(0040,A050)	CS	SEPARATE	ALWAYS	FIXED
Content Template Sequence	(0040,A504)	SQ		ALWAYS	AUTO
>Mapping Resource	(0008,0105)	CS	DCMR	ALWAYS	FIXED
>Template Identifier	(0040,DB00)	CS	10011	ALWAYS	FIXED
Content Sequence	(0040,A730)	SQ		ALWAYS	AUTO

9.1.5.5 SOP Common Module Attributes

Table 9-39: SOP Common Module

DICOM Attribute Name	Tag	Type	Value	Presence of Value	Source
SOP Class UID	(0008,0016)	UI	1.2.840.10008.5.1.4.1.1.88.67	ALWAYS	FIXED
SOP Instance UID	(0008,0018)	UI		ALWAYS	AUTO
Specific Character Set	(0008,0005)	CS		ALWAYS	AUTO

9.1.6 Examination Report Storage SOP Class

The Examination Report object is based on “1.2.840.10008.5.1.4.1.1.88.22 Enhanced SR Storage”

Table 9-40: IOD of created Examination Report Storage SOP Class Instances

IE	Module	Reference	Usage
Patient	Patient	Table 9-2	M
Study	General Study	Table 9-3	M
Series	SR Document Series	Table 9-35	M
Equipment	General Equipment	Table 9-7	M
Document	SR Document General	Table 9-37	M
	SR Document Content	Table 9-41	M
	SOP Common	Table 9-42	M

9.1.6.1 SR Document Content Module Attributes

Table 9-41: SR Document Content Module

DICOM Attribute Name	Tag	VR	Value	Presence of Value	Source
Value Type	(0040,A040)	CD	CONTAINER	ALWAYS	FIXED
Concept Name Code Sequence	(0040,A043)	SQ		ALWAYS	AUTO
>Code Value	(0008,0100)	SH	1	ALWAYS	FIXED
>Coding Scheme Designator	(0008,0102)	SH	99CT_SOMX	ALWAYS	FIXED
>Code Meaning	(0008,0104)	LO	CT Examination Report	ALWAYS	FIXED
Continuity of Content	(0040,A050)	CS	SEPARATE	ALWAYS	FIXED
Content Template Sequence	(0040,A504)	SQ		ALWAYS	AUTO
>Mapping Resource	(0008,0105)	CS	99CT_SOMX	ALWAYS	FIXED
>Template Identifier	(0040,DB00)	CS		ALWAYS	AUTO
Content Sequence	(0040,A730)	SQ		ALWAYS	AUTO

9.1.6.2 SOP Common Module Attributes

Table 9-42: SOP Common Module

DICOM Attribute Name	Tag	Type	Value	Presence of Value	Source
SOP Class UID	(0008,0016)	UI	1.2.840.10008.5.1.4.1.1.88.11	ALWAYS	FIXED
SOP Instance UID	(0008,0018)	UI		ALWAYS	AUTO
Specific Character Set	(0008,0005)	CS		ALWAYS	AUTO
Coding Scheme Identification Sequence	(0008,0110)	SQ		ALWAYS	AUTO
>Coding Scheme Designator	(0008,0102)	SH	99CT_SOMX	ALWAYS	FIXED
>Coding Scheme Responsible Organization	(0008,0116)	ST	Siemens AG, Healthcare, HC IM CR	ALWAYS	FIXED
>Coding Scheme Name	(0008,0115)	ST	CT Structured Report Content for Somaris/10	ALWAYS	FIXED

9.1.7 Spatial Registration SOP Class

Table 9-43: IOD of created Spatial RegistrationStorage SOP Class Instances

IE	Module	Reference	Usage
Patient	Patient	Table 9-2	ALWAYS
Study	General Study	Table 9-3	ALWAYS
	Patient Study	Table 9-4	CONDITIONAL
Series	General Series	Table 9-18	ALWAYS
Equipment	General Equipment	Table 9-7	ALWAYS

9.1.7.1 General Series Module Attributes

Table 9-44: Common Instance Reference Module

DICOM Attribute Name	Tag	VR	Attribute Description	Presence of Value	Source
Referenced Series Sequence	(0008,1115)	SQ	Used if both volumes are in same study. One item for each volume (registered space, registered volume)	ANAP	AUTO
>Referenced Instance Sequence	(0008,114A)	SQ		ANAP	AUTO
>Series Instance UID	(0020,000E)	UI		ANAP	AUTO
Studies Containing Other Referenced Instances Sequence	(0008,1200)	SQ	Used if both volumes are related to different studies	ALWAYS	AUTO
>Series Instance UID	(0020,000E)	UI		ANAP	AUTO
Studies Containing Other Referenced Instances Sequence	(0008,1200)	SQ	Used if both volumes are related to different studies.	ANAP	AUTO
>Referenced Series Sequence	(0008,1115)	SQ		ANAP	AUTO

>>Referenced Instance Sequence	(0008,114A)	SQ		ANAP	AUTO
>>Series Instance UID	(0020,000E)	UI		ANAP	AUTO
>Study Instance UID	(0020,000D)	UI		ANAP	AUTO

9.1.7.2 Frame of Reference Module Attributes

Table 9-45: Frame of Reference Module

DICOM Attribute Name	Tag	VR	Value	Presence of Value	Source
Frame of Reference UID	(0020,0052)	UI	Copied from object to which the registration result applies. ***Note***: In case of 2 volumes with 2 different FoR UIDs stored in same Series the related Registrations are also stored together in same series with FoR of the volume the first Registration is related to.	ALWAYS	AUTO
Position Reference Indicator	(0020,1040)	LO	If applicable, copied from original image (volume in registered space) to which the registration result applies.	VNAP	AUTO
Protocol Name	(0018,1030)	LO	"Fusion3D3D"	ALWAYS	AUTO
Series Number	(0020,0011)	IS	960	ALWAYS	AUTO

9.1.7.3 General Image Module Attributes

Table 9-46: General Image Module

DICOM Attribute Name	Tag	VR	Value	Presence of Value	Source
Image Type	(0008,0008)	CS	DERIVED\PRIMARY	ALWAYS	AUTO

9.1.7.4 Spatial Registration Series Module Attributes

Table 9-47: General Image Module

DICOM Attribute Name	Tag	VR	Value	Presence of Value	Source
Modality	(0008,0060)	CS	REG	ALWAYS	AUTO

9.1.7.5 Spatial Registration Module Attributes

Table 9-48: Spatial Registration Module

DICOM Attribute Name	Tag	VR	Value	Presence of Value	Source
Content Label	(0070,0080)	CS	"<YYYYMMDDHHMM>_REG"	ALWAYS	AUTO
Content Description	(0070,0081)	LO		ALWAYS	AUTO/USER
Content Creator's Name	(0070,0084)	PN	"3D3Dregistration"	ALWAYS	AUTO
Registration Sequence	(0070,0308)	SQ	Two items, one "identity transformation" for the volume in the registered space, to which the volume specified in the second item, is registered to.	ALWAYS	AUTO
>Referenced Image Sequence	(0008,1140)	SQ	Reference to the volume in the registered space	ANAP	AUTO
>Frame of Reference UID	(0020,0052)	UI	FoR of volume in the registered space	ALWAYS	AUTO
>Matrix Registration Sequence	(0070,0309)	SQ		ALWAYS	AUTO
>>Matrix Sequence	(0070,030A)	SQ		ALWAYS	AUTO
>>>Frame of Reference Transformation Matrix Type	(0070,030C)	CS		ALWAYS	AUTO
>>>Frame of Reference Transformation Matrix	(3006,00C6)	DS	"identity transformation" specified.	ALWAYS	AUTO
>>Registration Type Code Sequence	(0070,030D)	SQ	(125021, DCM, "Frame of Reference Identity")	ALWAYS	AUTO
>Referenced Image Sequence	(0008,1140)	SQ	reference to the volume that is registered to the registered space	ANAP	AUTO
>Frame of Reference UID	(0020,0052)	UI	FoR of volume that is registered to the registered space	ALWAYS	AUTO
>Matrix Registration Sequence	(0070,0309)	SQ		ALWAYS	AUTO
>>Matrix Sequence	(0070,030A)	SQ		ALWAYS	AUTO
>>>Frame of Reference Trans-formation Matrix Type	(0070,030C)	CS		ALWAYS	AUTO
>>>Frame of Reference Trans-formation Matrix	(3006,00C6)	DS	"identity transformation" specified	ALWAYS	AUTO
>>Registration Type Code Sequence	(0070,030D)	SQ	(125025,DCM,"Visual Alignment")	ALWAYS	AUTO

9.1.7.6 SOP Common Module Attributes

Table 9-49: SOP Common Module

DICOM Attribute Name	Tag	Type	Value	Presence of Value	Source
SOP Class UID	(0008,0016)	UI	1.2.840.10008.5.1.4.1.1.66.1	ALWAYS	FIXED
SOP Instance UID	(0008,0018)	UI		ALWAYS	AUTO
Specific Character Set	(0008,0005)	CS		ALWAYS	AUTO

9.2 Data Dictionary of Private Attributes

Table 50: Private Data Element Dictionary lists private attributes created by Somaris/10 which may be included in the generated instances. These private attributes may be deprecated or replaced with standard attributes in the future.

Table 50: Private Data Element Dictionary

DICOM Tag	Name	VR	VM
(0029,SIEMENS CSA ENVELOPE,10)	syngo Report Data	OB	1
(0029,SIEMENS CSA ENVELOPE,11)	syngo Report Presentation	OB	1
(0029,SIEMENS CSA HEADER,08)	Modality Image Header Type	CS	1
(0029,SIEMENS CSA HEADER,09)	Modality Image Header Version	LO	1
(0029,SIEMENS CSA HEADER,10)	Modality Image Header Info	OB	1
(0029,SIEMENS CSA HEADER,18)	Modality Series Header Type	CS	1
(0029,SIEMENS CSA HEADER,19)	Modality Series Header Version	LO	1
(0029,SIEMENS CSA HEADER,20)	Modality Series Header Info	OB	1
(0029,SIEMENS CSA NON-IMAGE,08)	Modality Data Header Type	CS	1
(0029,SIEMENS CSA NON-IMAGE,09)	Modality Data Header Version	LO	1
(0029,SIEMENS CSA NON-IMAGE,10)	Modality Data Header Info	OB	1
(7FE1,SIEMENS CSA NON-IMAGE,10)	Modality Data	OB	1
(0029,SIEMENS CSA REPORT,08)	syngo Report Type	CS	1
(0029,SIEMENS CSA REPORT,09)	syngo Report Version	LO	1
(0029,SIEMENS CSA REPORT,15)	SR Variant	US	1
(0029,SIEMENS CSA REPORT,17)	SC SOP Instance UID	UI	1
(0029,SIEMENS MEDCOM HEADER,40)	Application Header Sequence	SQ	1
(0029,SIEMENS MEDCOM HEADER,41)	Application Header Type	CS	1
(0029,SIEMENS MEDCOM HEADER,42)	Application Header ID	LO	1
(0029,SIEMENS MEDCOM HEADER,43)	Application Header Version	LO	1
(0029,SIEMENS MEDCOM HEADER,44)	Application Header Info	OB	1
(0029,SIEMENS MEDCOM HEADER,70)	Siemens Link Sequence	SQ	1-n
(0029,SIEMENS MEDCOM HEADER,71)	Referenced Tag	AT	1
(0029,SIEMENS MEDCOM HEADER,72)	Referenced Tag Type	CS	1
(0029,SIEMENS MEDCOM HEADER,73)	Referenced Value Length	UL	1
(0029,SIEMENS MEDCOM HEADER,74)	Referenced Object Device Type	CS	1
(0029,SIEMENS MEDCOM HEADER,75)	Referenced Object Device Location	OB	1
(0029,SIEMENS MEDCOM HEADER,76)	Referenced Object ID	OB	1
(0029,SIEMENS MEDCOM HEADER,77)	Referenced Object Offset	UL	1
(0029,SIEMENS MEDCOM HEADER2,60)	Series Work Flow Status	LO	1
(0029,SIEMENS SYNGO 3D FUSION MATRIX,08)	Object Series Instance UID	UI	1
(0029,SIEMENS SYNGO 3D FUSION MATRIX,09)	Model Series Instance UID	UI	1
(0029,SIEMENS SYNGO 3D FUSION MATRIX,10)	Matrix Referenced Series Instance UID	UI	1
(0029,SIEMENS SYNGO ADVANCED PRESENTATION,00)	Presentation Name	ST	1
(0029,SIEMENS SYNGO ADVANCED PRESENTATION,01)	Presentation Type	LO	1

DICOM Tag	Name	VR	VM
(0029,SIEMENS SYNGO ADVANCED PRESENTATION,02)	Advanced Presentation Sequence	SQ	1
(0029,SIEMENS SYNGO ADVANCED PRESENTATION,03)	Time Point Sequence	SQ	1-n
(0029,SIEMENS SYNGO ADVANCED PRESENTATION,04)	Base Image Sequence	SQ	1
(0029,SIEMENS SYNGO ADVANCED PRESENTATION,05)	Overlay Image Sequence	SQ	0-n
(0029,SIEMENS SYNGO ADVANCED PRESENTATION,06)	Registration Instance Sequence	SQ	0-1
(0029,SIEMENS SYNGO ADVANCED PRESENTATION,07)	Real World Value Mapping Instance Sequence	SQ	0-1
(0029,SIEMENS SYNGO ADVANCED PRESENTATION,08)	Measurement Sequence	SQ	0-n
(0029,SIEMENS SYNGO ADVANCED PRESENTATION,09)	Measurement UID	UI	1
(0029,SIEMENS SYNGO ADVANCED PRESENTATION,10)	Segmentation Sequence	SQ	0-n
(0029,SIEMENS SYNGO ADVANCED PRESENTATION,11)	Segmentation UID	SH	1
(0029,SIEMENS SYNGO ADVANCED PRESENTATION,12)	Navigation Sequence	SQ	0-n
(0029,SIEMENS SYNGO ADVANCED PRESENTATION,13)	Navigation Name	LO	1
(0029,SIEMENS SYNGO ADVANCED PRESENTATION,14)	Auto Navigation Direction	LO	1
(0029,SIEMENS SYNGO ADVANCED PRESENTATION,15)	Auto Navigation Frame Rate	DS	1
(0029,SIEMENS SYNGO ADVANCED PRESENTATION,16)	Auto Navigation Mode	LO	1
(0029,SIEMENS SYNGO ADVANCED PRESENTATION,17)	Auto Navigation Realtime Speed	DS	1
(0029,SIEMENS SYNGO ADVANCED PRESENTATION,18)	Auto Navigation Strategy	LO	1
(0029,SIEMENS SYNGO ADVANCED PRESENTATION,19)	Auto Navigation Realtime Flag	SH	1
(0029,SIEMENS SYNGO ADVANCED PRESENTATION,20)	Index Navigation Current Index	IS	1
(0029,SIEMENS SYNGO ADVANCED PRESENTATION,21)	Index Auto Navigation Skipping Degree	IS	1
(0029,SIEMENS SYNGO ADVANCED PRESENTATION,22)	Volume Navigation Minimum Pixel Spacing	DS	1
(0029,SIEMENS SYNGO ADVANCED PRESENTATION,23)	Volume Navigation Scroll Unit	CS	1
(0029,SIEMENS SYNGO ADVANCED PRESENTATION,24)	Volume Navigation Step Size	DS	1
(0029,SIEMENS SYNGO ADVANCED PRESENTATION,25)	Volume Navigation Jump Size	DS	1
(0029,SIEMENS SYNGO ADVANCED PRESENTATION,26)	Referenced Registration Number	IS	1
(0029,SIEMENS SYNGO ADVANCED PRESENTATION,27)	Real World Value Mapping UID	SH	1
(0029,SIEMENS SYNGO ADVANCED PRESENTATION,28)	Channel Alpha Value	DS	1
(0029,SIEMENS SYNGO ADVANCED PRESENTATION,30)	Measurement Application Name	LO	1
(0029,SIEMENS SYNGO ADVANCED PRESENTATION,31)	Measurement Data Sequence	SQ	1-n
(0029,SIEMENS SYNGO ADVANCED PRESENTATION,32)	Measurement Type	LO	1
(0029,SIEMENS SYNGO ADVANCED PRESENTATION,33)	Measurement Frame of Reference UID	UI	1
(0029,SIEMENS SYNGO ADVANCED PRESENTATION,34)	Measurement Uid	UI	1
(0029,SIEMENS SYNGO ADVANCED PRESENTATION,35)	Measurement Application Number	IS	1
(0029,SIEMENS SYNGO ADVANCED PRESENTATION,36)	Measurement Application Number Prefix Text	ST	1
(0029,SIEMENS SYNGO ADVANCED PRESENTATION,37)	Measurement Graphic Is Visible Flag	CS	1
(0029,SIEMENS SYNGO ADVANCED PRESENTATION,38)	Referenced Syngo Uid	UI	4
(0029,SIEMENS SYNGO ADVANCED PRESENTATION,39)	Clinical Finding Uid	UI	1
(0029,SIEMENS SYNGO ADVANCED PRESENTATION,3A)	Measurement Evaluation String Value	CS	1
(0029,SIEMENS SYNGO ADVANCED PRESENTATION,3B)	Measurement Evaluation Integer Value	IS	1
(0029,SIEMENS SYNGO ADVANCED PRESENTATION,3C)	Measurement Evaluation Decimal Value	FL	1
(0029,SIEMENS SYNGO ADVANCED PRESENTATION,3D)	Measurement Line Show Center Flag	CS	1
(0029,SIEMENS SYNGO ADVANCED PRESENTATION,3E)	Measurement Angle Show ArrowTip Flag	CS	1
(0029,SIEMENS SYNGO ADVANCED PRESENTATION,3F)	Camera Home Settings Sequence	SQ	1
(0029,SIEMENS SYNGO ADVANCED PRESENTATION,40)	Camera Zoom	DS	1
(0029,SIEMENS SYNGO ADVANCED PRESENTATION,41)	Camera Position	DS	3
(0029,SIEMENS SYNGO ADVANCED PRESENTATION,42)	Camera Orientation	DS	4
(0029,SIEMENS SYNGO ADVANCED PRESENTATION,43)	Camera Far Clip Plane	DS	1
(0029,SIEMENS SYNGO ADVANCED PRESENTATION,44)	Camera Near Clip Plane	DS	1
(0029,SIEMENS SYNGO ADVANCED PRESENTATION,46)	Camera ViewPort Size	DS	1
(0029,SIEMENS SYNGO ADVANCED PRESENTATION,47)	Camera Aspect Ratio	DS	1
(0029,SIEMENS SYNGO ADVANCED PRESENTATION,48)	Camera Projection Type	LO	1
(0029,SIEMENS SYNGO ADVANCED PRESENTATION,49)	Camera Field of View	DS	1
(0029,SIEMENS SYNGO ADVANCED PRESENTATION,4A)	Camera Image Plane Distance	DS	1
(0029,SIEMENS SYNGO ADVANCED PRESENTATION,4B)	Camera Image Maximum Height	DS	1
(0029,SIEMENS SYNGO ADVANCED PRESENTATION,4C)	Camera Image Minimum Height	DS	1
(0029,SIEMENS SYNGO ADVANCED PRESENTATION,4D)	ParallelShift Interval MM	DS	1

DICOM Tag	Name	VR	VM
(0029,SIEMENS SYNGO ADVANCED PRESENTATION,4E)	Measurement ArrowTip Size	FL	1
(0029,SIEMENS SYNGO ADVANCED PRESENTATION,4F)	Measurement ArrowTip Size ScalingFactor	FL	1
(0029,SIEMENS SYNGO ADVANCED PRESENTATION,50)	Renderer Vertex Is Characteristic Flag	CS	1
(0029,SIEMENS SYNGO ADVANCED PRESENTATION,51)	Renderer Thickness Usage Flag	CS	1
(0029,SIEMENS SYNGO ADVANCED PRESENTATION,52)	Renderer Threshold	DS	2
(0029,SIEMENS SYNGO ADVANCED PRESENTATION,53)	Renderer Material	DS	4-8
(0029,SIEMENS SYNGO ADVANCED PRESENTATION,54)	Renderer DirectionalLight Color	DS	4
(0029,SIEMENS SYNGO ADVANCED PRESENTATION,55)	Renderer DirectionalLight Direction	DS	3
(0029,SIEMENS SYNGO ADVANCED PRESENTATION,56)	Renderer DirectionalLight TwoSide Usage Flag	CS	1
(0029,SIEMENS SYNGO ADVANCED PRESENTATION,57)	Renderer PWL TransferFunction Sequence	SQ	0-n
(0029,SIEMENS SYNGO ADVANCED PRESENTATION,58)	Renderer PWL Vertex Index	IS	0-n
(0029,SIEMENS SYNGO ADVANCED PRESENTATION,59)	Renderer PWL Vertex Color	DS	0-n
(0029,SIEMENS SYNGO ADVANCED PRESENTATION,5A)	Renderer Is Camera Required Flag	CS	1
(0029,SIEMENS SYNGO ADVANCED PRESENTATION,5B)	Renderer Do Depth Test Flag	CS	1
(0029,SIEMENS SYNGO ADVANCED PRESENTATION,5C)	Renderer DirectionalLight Usage Flag	CS	1
(0029,SIEMENS SYNGO ADVANCED PRESENTATION,5D)	Renderer Thickness Sequence	SQ	0-n
(0029,SIEMENS SYNGO ADVANCED PRESENTATION,5E)	Renderer Slice Spacing Sequence	SQ	0-n
(0029,SIEMENS SYNGO ADVANCED PRESENTATION,5F)	Renderer Sampling Distance	DS	1
(0029,SIEMENS SYNGO ADVANCED PRESENTATION,60)	Renderer Initial Sampling Distance	DS	1
(0029,SIEMENS SYNGO ADVANCED PRESENTATION,61)	Segmentation Display Data Sequence	SQ	0-n
(0029,SIEMENS SYNGO ADVANCED PRESENTATION,62)	Segmentation Display Data UID	ST	0-n
(0029,SIEMENS SYNGO ADVANCED PRESENTATION,63)	Segmentation Display Parameter Sequence	SQ	0-n
(0029,SIEMENS SYNGO ADVANCED PRESENTATION,64)	Segmentation Display Parameter Type	LO	1
(0029,SIEMENS SYNGO ADVANCED PRESENTATION,65)	Segmentation Display Visibility	LO	1
(0029,SIEMENS SYNGO ADVANCED PRESENTATION,66)	Segmentation Display Color	DS	4
(0029,SIEMENS SYNGO ADVANCED PRESENTATION,67)	Segmentation Display Is Selected Flag	CS	1
(0029,SIEMENS SYNGO ADVANCED PRESENTATION,68)	Segmentation Additional Information Blob	OB	1
(0029,SIEMENS SYNGO ADVANCED PRESENTATION,69)	Hash Code Value	ST	1
(0029,SIEMENS SYNGO ADVANCED PRESENTATION,6A)	Segmentation Version Identifier	LO	1-n
(0029,SIEMENS SYNGO ADVANCED PRESENTATION,6B)	Segmentation Lock Mode	LO	1
(0029,SIEMENS SYNGO ADVANCED PRESENTATION,70)	Segmentation Volume Size	DS	3
(0029,SIEMENS SYNGO ADVANCED PRESENTATION,7A)	Segmentation Volume StorageDataType	DS	1
(0029,SIEMENS SYNGO ADVANCED PRESENTATION,7B)	Segmentation Volume Model Matrix	FL	16
(0029,SIEMENS SYNGO ADVANCED PRESENTATION,7C)	Segmentation Display Is Applied Flag	CS	1
(0029,SIEMENS SYNGO ADVANCED PRESENTATION,7D)	Display Representation Instance Identifier	LO	1
(0029,SIEMENS SYNGO ADVANCED PRESENTATION,71)	Registration Referenced Frames	UI	1-n
(0029,SIEMENS SYNGO ADVANCED PRESENTATION,72)	Registration Referenced Registrations	UI	1-n
(0029,SIEMENS SYNGO ADVANCED PRESENTATION,73)	Registration Creation Algorithm Name	LO	1
(0029,SIEMENS SYNGO ADVANCED PRESENTATION,74)	ECG Graphic Type	CS	1
(0029,SIEMENS SYNGO ADVANCED PRESENTATION,75)	Hidden Pixel Spacing	CS	1
(0029,SIEMENS SYNGO ADVANCED PRESENTATION,76)	Renderer Edge Enhancement Param	DS	1
(0029,SIEMENS SYNGO ADVANCED PRESENTATION,77)	Renderer Gradient Modulated Opacity Param	DS	1
(0029,SIEMENS SYNGO ADVANCED PRESENTATION,78)	Renderer Volume Smoothing Param	DS	1
(0029,SIEMENS SYNGO ADVANCED PRESENTATION,7E)	Fused Presentation LUT Shape	CS	1
(0029,SIEMENS SYNGO ADVANCED PRESENTATION,7F)	Overlay Graphic VisibleFlag	CS	1
(0029,SIEMENS SYNGO ADVANCED PRESENTATION,80)	Camera Rotation Axis	DS	3
(0029,SIEMENS SYNGO ADVANCED PRESENTATION,81)	Overlay Hidden Display Attributes	SL	0-n
(0029,SIEMENS SYNGO ADVANCED PRESENTATION,82)	Presentation State Group Identifier	LO	1
(0029,SIEMENS SYNGO ADVANCED PRESENTATION,83)	Temporary Smallest Image Pixel Value	US	1
(0029,SIEMENS SYNGO ADVANCED PRESENTATION,84)	Camera Rotation Center	DS	3
(0029,SIEMENS SYNGO ADVANCED PRESENTATION,85)	Camera Rotation Center Usage Flag	CS	1
(0029,SIEMENS SYNGO ADVANCED PRESENTATION,86)	Camera Parallel Epiped	DS	12
(0029,SIEMENS SYNGO ADVANCED PRESENTATION,87)	Camera Max Zoom In Factor	DS	1
(0029,SIEMENS SYNGO ADVANCED PRESENTATION,88)	Camera Min Zoom In Factor	DS	1
(0029,SIEMENS SYNGO ADVANCED PRESENTATION,89)	Temporary Largest Image Pixel Value	US	1

DICOM Tag	Name	VR	VM
(0029,SIEMENS SYNGO ADVANCED PRESENTATION,8A)	Camera Rotation Axis Usage Flag	CS	1
(0029,SIEMENS SYNGO ADVANCED PRESENTATION,8B)	Measurement Surface Normal	DS	3
(0029,SIEMENS SYNGO ADVANCED PRESENTATION,8C)	Measurement Ellipsoid Model Matrix	FL	16
(0029,SIEMENS SYNGO ADVANCED PRESENTATION,8D)	Measurement Evaluation DataRole ID	LO	1
(0029,SIEMENS SYNGO ADVANCED PRESENTATION,8E)	Measurement Algorithm Type	LO	1
(0029,SIEMENS SYNGO ADVANCED PRESENTATION,91)	Measurement Evaluation DataRole Sequence	SQ	0-n
(0029,SIEMENS SYNGO ADVANCED PRESENTATION,93)	Measurement Evaluation Sequence	SQ	1-n
(0029,SIEMENS SYNGO ADVANCED PRESENTATION,94)	Measurement Evaluation Value	DS	1
(0029,SIEMENS SYNGO ADVANCED PRESENTATION,95)	Measurement Evaluation ID	LO	1
(0029,SIEMENS SYNGO ADVANCED PRESENTATION,96)	Measurement Data Points	FL	0-n
(0029,SIEMENS SYNGO ADVANCED PRESENTATION,97)	Measurement Data Angles	FL	0-n
(0029,SIEMENS SYNGO ADVANCED PRESENTATION,98)	Measurement Data Slice	FD	9
(0029,SIEMENS SYNGO ADVANCED PRESENTATION,99)	Measurement Data Slice Thickness	FL	1
(0029,SIEMENS SYNGO ADVANCED PRESENTATION,9A)	Measurement Referenced Frames Sequence	SQ	0-n
(0029,SIEMENS SYNGO ADVANCED PRESENTATION,9B)	Measurement Evaluation Longest Distance	DS	0-n
(0029,SIEMENS SYNGO ADVANCED PRESENTATION,9C)	Measurement Evaluation Centroid	DS	0-n
(0029,SIEMENS SYNGO ADVANCED PRESENTATION,9D)	Measurement Data Bounding Box	FL	6
(0029,SIEMENS SYNGO ADVANCED PRESENTATION,9E)	Measurement Text	LO	1
(0029,SIEMENS SYNGO ADVANCED PRESENTATION,9F)	Measurement Diameter	IS	1
(0029,SIEMENS SYNGO ADVANCED PRESENTATION,A0)	Image Rotation Fractional	DS	1
(0029,SIEMENS SYNGO ADVANCED PRESENTATION,A1)	Preset Name	LO	1
(0029,SIEMENS SYNGO ADVANCED PRESENTATION,A2)	Fusion LUT Sequence	SQ	1
(0029,SIEMENS SYNGO ADVANCED PRESENTATION,A3)	Fusion LUT Is Active Flag	CS	1
(0029,SIEMENS SYNGO ADVANCED PRESENTATION,A4)	Scale To Fit Type	CS	1
(0029,SIEMENS SYNGO ADVANCED PRESENTATION,A5)	Syngo UID	UI	1
(0029,SIEMENS SYNGO ADVANCED PRESENTATION,A6)	Presentation Version Identifier	UI	1
(0029,SIEMENS SYNGO ADVANCED PRESENTATION,A7)	Presentation Module Sequence	SQ	0-n
(0029,SIEMENS SYNGO ADVANCED PRESENTATION,A8)	Presentation Module Type	ST	1
(0029,SIEMENS SYNGO ADVANCED PRESENTATION,A9)	Presentation State Sequence	SQ	0-n
(0029,SIEMENS SYNGO ADVANCED PRESENTATION,AA)	LUT Inverted Flag	CS	1
(0029,SIEMENS SYNGO ADVANCED PRESENTATION,AB)	Softcopy Voi Lut Viewing Index	IS	1
(0029,SIEMENS SYNGO ADVANCED PRESENTATION,AC)	Displayed Area Bottom Right Hand Corner Fractional	FD	2
(0029,SIEMENS SYNGO ADVANCED PRESENTATION,AD)	Displayed Area Top Left Hand Corner Fractional	FD	2
(0029,SIEMENS SYNGO ADVANCED PRESENTATION,AE)	Measurement Alpha	FL	1
(0029,SIEMENS SYNGO ADVANCED PRESENTATION,AF)	Measurement Bitmap	OB	1
(0029,SIEMENS SYNGO ADVANCED PRESENTATION,B0)	Current Frame Number	US	1
(0029,SIEMENS SYNGO ADVANCED PRESENTATION,B1)	ImageText View Name	ST	1
(0029,SIEMENS SYNGO ADVANCED PRESENTATION,B2)	ImageText View Content Sequence	SQ	1
(0029,SIEMENS SYNGO ADVANCED PRESENTATION,B3)	ImageText Line Names	LO	1-n
(0029,SIEMENS SYNGO ADVANCED PRESENTATION,B4)	ImageText Line Values	LO	1-n
(0029,SIEMENS SYNGO ADVANCED PRESENTATION,B5)	Measurement Evaluation Text Position Sequence	SQ	1-n
(0029,SIEMENS SYNGO ADVANCED PRESENTATION,B6)	Measurement Link Evaluation Text Flag	CS	1
(0029,SIEMENS SYNGO ADVANCED PRESENTATION,B7)	Measurement Evaluation Text Position Vector	DS	3
(0029,SIEMENS SYNGO ADVANCED PRESENTATION,B8)	ImageText Alpha Blending Line Value	OB	1
(0029,SIEMENS SYNGO ADVANCED PRESENTATION,B9)	ImageText Visibility	CS	1
(0029,SIEMENS SYNGO ADVANCED PRESENTATION,BA)	ImageText Reduced	CS	1
(0029,SIEMENS SYNGO ADVANCED PRESENTATION,BB)	ImageText Minimal	CS	1
(0029,SIEMENS SYNGO ADVANCED PRESENTATION,BC)	ImageText ViewID	ST	1
(0029,SIEMENS SYNGO ADVANCED PRESENTATION,BD)	Unlinked Image Text View Name	ST	1
(0029,SIEMENS SYNGO ADVANCED PRESENTATION,C1)	Task Data Sequence	SQ	1
(0029,SIEMENS SYNGO ADVANCED PRESENTATION,C2)	Task Data Type	CS	1
(0029,SIEMENS SYNGO ADVANCED PRESENTATION,C3)	Task Data Version	LO	1
(0029,SIEMENS SYNGO ADVANCED PRESENTATION,C4)	Task Data Description	ST	1
(0029,SIEMENS SYNGO ADVANCED PRESENTATION,C5)	Task Data	OB	1
(0029,SIEMENS SYNGO ADVANCED PRESENTATION,C6)	Task Data Size	IS	1
(0029,SIEMENS SYNGO ADVANCED PRESENTATION,C7)	True Size Type	CS	1

DICOM Tag	Name	VR	VM
(0029,SIEMENS SYNGO ADVANCED PRESENTATION,C8)	Image Graphics Visibility	CS	1
(0029,SIEMENS SYNGO ADVANCED PRESENTATION,C9)	Clip Plane Sequence	SQ	1-n
(0029,SIEMENS SYNGO ADVANCED PRESENTATION,CA)	Clip Plane Center	DS	3
(0029,SIEMENS SYNGO ADVANCED PRESENTATION,CB)	Clip Plane Normal	DS	3
(0029,SIEMENS SYNGO ADVANCED PRESENTATION,CC)	Clip Plane Scale	DS	2
(0029,SIEMENS SYNGO ADVANCED PRESENTATION,CD)	Clip Plane Use Thickness Flag	CS	1
(0029,SIEMENS SYNGO ADVANCED PRESENTATION,CE)	Clip Plane Thickness	DS	1
(0029,SIEMENS SYNGO ADVANCED PRESENTATION,CF)	Image Sequence	SQ	1-n
(0029,SIEMENS SYNGO ADVANCED PRESENTATION,D0)	Clip Plane Enable Clip	CS	1
(0029,SIEMENS SYNGO ADVANCED PRESENTATION,D1)	Clip Plane Handle Ratio	DS	1
(0029,SIEMENS SYNGO ADVANCED PRESENTATION,D2)	Clip Plane Bounding Points	DS	24
(0029,SIEMENS SYNGO ADVANCED PRESENTATION,D3)	Clip Plane Motion Matrix	DS	16
(0029,SIEMENS SYNGO ADVANCED PRESENTATION,D4)	Clip Plane Shift Velocity	DS	1
(0029,SIEMENS SYNGO ADVANCED PRESENTATION,D5)	Clip Plane Enabled Flag	CS	1
(0029,SIEMENS SYNGO ADVANCED PRESENTATION,D6)	Clip Plane Rotate Velocity	DS	1
(0029,SIEMENS SYNGO ADVANCED PRESENTATION,D7)	Clip Plane Show Graphics Flag	CS	1
(0029,SIEMENS SYNGO ADVANCED PRESENTATION,E0)	Crop Box Size	DS	3
(0029,SIEMENS SYNGO ADVANCED PRESENTATION,E1)	Crop Box Enabled Flag	CS	1
(0029,SIEMENS SYNGO ADVANCED PRESENTATION,E2)	Crop Box Absolute Origin	DS	3
(0029,SIEMENS SYNGO ADVANCED PRESENTATION,E3)	Crop Box Show Graphics Flag	CS	1
(0029,SIEMENS SYNGO ADVANCED PRESENTATION,E4)	Renderer Filter Settings Sequence	SQ	1
(0029,SIEMENS SYNGO ADVANCED PRESENTATION,E5)	Renderer Energy Conversion Lut	OF	1
(0029,SIEMENS SYNGO ADVANCED PRESENTATION,E6)	Apply Fusion	CS	1
(0029,SIEMENS SYNGO ADVANCED PRESENTATION,E7)	RepresentationId	CS	1
(0029,SIEMENS SYNGO ADVANCED PRESENTATION,EE)	Advanced Display Representation Sequence	SQ	1
(0029,SIEMENS SYNGO ADVANCED PRESENTATION,EF)	Measurement Visibility In View	ST	1
(0029,SIEMENS SYNGO ADVANCED PRESENTATION,F0)	Measurement Label Text	ST	1
(0029,SIEMENS SYNGO ADVANCED PRESENTATION,F1)	Curved Camera Coordinates	DS	0-n
(0029,SIEMENS SYNGO ADVANCED PRESENTATION,F2)	Curved Camera Point Of Interest	DS	1
(0029,SIEMENS SYNGO ADVANCED PRESENTATION,F3)	Curved Camera Point Of Interest Usage Flag	CS	1
(0029,SIEMENS SYNGO ADVANCED PRESENTATION,F4)	Curved Camera Thickness	DS	1
(0029,SIEMENS SYNGO ADVANCED PRESENTATION,F5)	Curved Camera Extrusion Length	DS	1
(0029,SIEMENS SYNGO ADVANCED PRESENTATION,F6)	Curved Camera Rotation Axis Mode	CS	1
(0029,SIEMENS SYNGO ADVANCED PRESENTATION,F7)	Curved Camera Roll Rotation Axis	DS	1
(0029,SIEMENS SYNGO ADVANCED PRESENTATION,F8)	Curved Camera View Port Height	DS	1
(0029,SIEMENS SYNGO ADVANCED PRESENTATION,F9)	Curved Camera Cut Direction	DS	1
(0029,SIEMENS SYNGO ADVANCED PRESENTATION,FA)	Curved Camera Pan Vector	DS	1
(0029,SIEMENS SYNGO ADVANCED PRESENTATION,FB)	Clinical Finding ID	LO	1
(0029,SIEMENS SYNGO ADVANCED PRESENTATION,FC)	Measurement Is Circle Flag	CS	1
(0029,SIEMENS SYNGO ADVANCED PRESENTATION,FD)	Measurement Application TypeID	LO	1
(0029,SIEMENS SYNGO ADVANCED PRESENTATION,FE)	Measurement Default Evaluation Text Visibility	CS	1
(0029,SIEMENS SYNGO ADVANCED PRESENTATION,FF)	Measurement Font Height	SL	1
(002B,SIEMENS SYNGO ADVANCED PRESENTATION,00)	Measurement Min Threshold Value	SL	1
(002B,SIEMENS SYNGO ADVANCED PRESENTATION,01)	Measurement Max Threshold Value	SL	1
(0029,SIEMENS SYNGO ALPHA CAD,10)	Automatic Landmarking and Parsing of Human Anatomy Version	CS	1
(0029,SIEMENS SYNGO ALPHA CAD,12)	Automatic Landmarking and Parsing of Human Anatomy Body Regions	SQ	1
(7FDF,SIEMENS SYNGO DATA PADDING,FC)	Pixel Data Leading Padding	OB	1
(0087,SIEMENS SYNGO ENCAPSULATED DOCUMENT DATA,20)	Study Model	OB	1
(0087,SIEMENS SYNGO ENCAPSULATED DOCUMENT DATA,30)	Report XML Schema	OB	1
(0087,SIEMENS SYNGO ENCAPSULATED DOCUMENT DATA,40)	Report Identifier	OB	1
(0027,SIEMENS SYNGO ENHANCED IDATASET API,01)	Business Unit Code	CS	1
(0027,SIEMENS SYNGO ENHANCED IDATASET API,02)	Application Type	LO	1

DICOM Tag	Name	VR	VM
(0027,SIEMENS SYNGO ENHANCED IDATASET API,03)	Application Attributes Sequence	SQ	1
(0077,SIEMENS SYNGO EVIDENCE DOCUMENT DATA,10)	Evidence Document Template ID	LO	1
(0077,SIEMENS SYNGO EVIDENCE DOCUMENT DATA,11)	Evidence Document Template Version	DS	1
(0077,SIEMENS SYNGO EVIDENCE DOCUMENT DATA,20)	Evidence Document Clinical Finding Data	OB	1
(0077,SIEMENS SYNGO EVIDENCE DOCUMENT DATA,21)	Evidence Document Metadata	OB	1
(0077,SIEMENS SYNGO EVIDENCE DOCUMENT DATA,30)	Evidence Document Implementation Version	DS	1
(0077,SIEMENS SYNGO EVIDENCE DOCUMENT DATA,40)	Evidence Document Predecessor	OB	1
(0077,SIEMENS SYNGO EVIDENCE DOCUMENT DATA,50)	Evidence Document Logical ID	LO	1
(0077,SIEMENS SYNGO EVIDENCE DOCUMENT DATA,60)	Evidence Document Application Data	OB	1
(0077,SIEMENS SYNGO EVIDENCE DOCUMENT DATA,70)	Evidence Document Owner Clinical Task Name	LO	1
(0077,SIEMENS SYNGO EVIDENCE DOCUMENT DATA,71)	Evidence Document Owner Task Name	LO	1
(0077,SIEMENS SYNGO EVIDENCE DOCUMENT DATA,80)	Evidence Document Owner Supported Templates	OB	1
(0029,SIEMENS SYNGO FRAME SET,10)	Image Frame Sequence	SQ	1-n
(0029,SIEMENS SYNGO FRAME SET,12)	Type of Progression	CS	1
(0029,SIEMENS SYNGO FRAME SET,14)	Representation Level	IS	1
(0029,SIEMENS SYNGO FRAME SET,16)	Representation Information Sequence	SQ	1-n
(0029,SIEMENS SYNGO FRAME SET,18)	Number of Representations	IS	1
(0029,SIEMENS SYNGO FRAME SET,20)	Representation Pixel Offset	IS	1
(0029,SIEMENS SYNGO FUNCTION ASSIGNMENT,01)	Data Reference	LO	1
(0009,SIEMENS SYNGO INDEX SERVICE,20)	Object Insertion Date	DA	1
(0009,SIEMENS SYNGO INDEX SERVICE,30)	Instance Object States	SQ	1
(0009,SIEMENS SYNGO INDEX SERVICE,31)	Series Object States	SQ	1
(0009,SIEMENS SYNGO INDEX SERVICE,40)	Last Access Time	DT	1
(0009,SIEMENS SYNGO INDEX SERVICE,41)	Delete Protected Status	CS	1
(0009,SIEMENS SYNGO INDEX SERVICE,42)	Received from Archive Status	CS	1
(0009,SIEMENS SYNGO INDEX SERVICE,43)	Archive Status	CS	1
(0009,SIEMENS SYNGO INDEX SERVICE,44)	Location	AE	1
(0009,SIEMENS SYNGO INDEX SERVICE,45)	Logical Deleted Status	CS	1
(0009,SIEMENS SYNGO INDEX SERVICE,46)	Insert Time	DT	1
(0009,SIEMENS SYNGO INDEX SERVICE,47)	Visible Instances on Series Level	IS	1
(0009,SIEMENS SYNGO INDEX SERVICE,48)	Series Archived	CS	1
(0009,SIEMENS SYNGO INDEX SERVICE,49)	Visible Instances on Study Level	IS	1
(0009,SIEMENS SYNGO INDEX SERVICE,4A)	Series Completed	IS	1
(0009,SIEMENS SYNGO INDEX SERVICE,4B)	Delete Protection Time	DT	1
(0009,SIEMENS SYNGO INDEX SERVICE,4C)	Delete Protection User	LO	1
(0009,SIEMENS SYNGO INDEX SERVICE,4D)	Study Marked Time	DT	1
(0009,SIEMENS SYNGO INDEX SERVICE,4E)	Study Marked User	LO	1
(0009,SIEMENS SYNGO INDEX SERVICE,4F)	Series Delete Protected	CS	1
(0009,SIEMENS SYNGO INDEX SERVICE,50)	Hidden Instance	CS	1
(0009,SIEMENS SYNGO INDEX SERVICE,51)	Frame Number	UL	1-n
(0009,SIEMENS SYNGO INDEX SERVICE,60)	Data Handling Status	CS	1
(0009,SIEMENS SYNGO INDEX SERVICE,61)	Result Status	CS	1
(0009,SIEMENS SYNGO INDEX SERVICE,62)	Clinical Result Attribute	US	1
(0009,SIEMENS SYNGO INDEX SERVICE,63)	Instance Origin	CS	1
(0009,SIEMENS SYNGO INDEX SERVICE,64)	DM file relative location for store	LT	1
(0009,SIEMENS SYNGO INDEX SERVICE,70)	Header Offset	UL	1
(0009,SIEMENS SYNGO INDEX SERVICE,71)	Study Archived	CS	1
(0009,SIEMENS SYNGO INDEX SERVICE,72)	Study Exported	CS	1
(0009,SIEMENS SYNGO INDEX SERVICE,73)	Series Exported	CS	1
(0009,SIEMENS SYNGO INDEX SERVICE,74)	Instance Exported	CS	1
(0009,SIEMENS SYNGO INDEX SERVICE,75)	Study Corrected	CS	1
(0009,SIEMENS SYNGO INDEX SERVICE,76)	Study Marked	CS	1
(0009,SIEMENS SYNGO INDEX SERVICE,77)	Review	SL	1
(0009,SIEMENS SYNGO INDEX SERVICE,78)	Isotope Module Level	SL	1
(0009,SIEMENS SYNGO INDEX SERVICE,79)	Radionuclide Total Dose on Series level	DS	1
(0009,SIEMENS SYNGO INDEX SERVICE,7A)	Radionuclide Total Dose on Instance level	DS	1

DICOM Tag	Name	VR	VM
(0009,SIEMENS SYNGO INDEX SERVICE,7B)	Series Radiopharmaceutical Information Sequence	SQ	1
(0009,SIEMENS SYNGO INDEX SERVICE,7C)	Instance Radiopharmaceutical Information Sequence	SQ	1
(0009,SIEMENS SYNGO INDEX SERVICE,80)	Workflow Attribute Sequence	SQ	1-n
(0009,SIEMENS SYNGO INDEX SERVICE,81)	Patient's Name Attribute Sequence	SQ	1
(0009,SIEMENS SYNGO INDEX SERVICE,82)	Other Patient Names Attribute Sequence	SQ	1-n
(0009,SIEMENS SYNGO INDEX SERVICE,83)	Name of Physician(s) Reading Study Attribute Sequence	SQ	1-n
(0009,SIEMENS SYNGO INDEX SERVICE,84)	Requesting Physician Attribute Sequence	SQ	1
(0009,SIEMENS SYNGO INDEX SERVICE,85)	Referring Physician's Name Attribute Sequence	SQ	1
(0009,SIEMENS SYNGO INDEX SERVICE,86)	Performing Physician's Name Attribute Sequence	SQ	1-n
(0009,SIEMENS SYNGO INDEX SERVICE,87)	Family Name	LO	1
(0009,SIEMENS SYNGO INDEX SERVICE,88)	Given Name	LO	1
(0009,SIEMENS SYNGO INDEX SERVICE,89)	Middle Name	LO	1
(0009,SIEMENS SYNGO INDEX SERVICE,8A)	Prefix	LO	1
(0009,SIEMENS SYNGO INDEX SERVICE,8B)	Suffix	LO	1
(0009,SIEMENS SYNGO INDEX SERVICE,8C)	Degree	LO	1
(0009,SIEMENS SYNGO INDEX SERVICE,8D)	Ideographic Family Name	LO	1
(0009,SIEMENS SYNGO INDEX SERVICE,8E)	Ideographic Given Name	LO	1
(0009,SIEMENS SYNGO INDEX SERVICE,8F)	Ideographic Middle Name	LO	1
(0009,SIEMENS SYNGO INDEX SERVICE,90)	Ideographic Prefix	LO	1
(0009,SIEMENS SYNGO INDEX SERVICE,91)	Ideographic Suffix	LO	1
(0009,SIEMENS SYNGO INDEX SERVICE,92)	Ideographic Degree	LO	1
(0009,SIEMENS SYNGO INDEX SERVICE,93)	Phonetic Family Name	LO	1
(0009,SIEMENS SYNGO INDEX SERVICE,94)	Phonetic Given Name	LO	1
(0009,SIEMENS SYNGO INDEX SERVICE,95)	Phonetic Middle Name	LO	1
(0009,SIEMENS SYNGO INDEX SERVICE,96)	Phonetic Prefix	LO	1
(0009,SIEMENS SYNGO INDEX SERVICE,97)	Phonetic Suffix	LO	1
(0009,SIEMENS SYNGO INDEX SERVICE,98)	Phonetic Degree	LO	1
(0009,SIEMENS SYNGO INDEX SERVICE,99)	Study Printed	CS	1
(0009,SIEMENS SYNGO INDEX SERVICE,9A)	Series Printed	CS	1
(0009,SIEMENS SYNGO INDEX SERVICE,9B)	Instance Printed	CS	1
(0009,SIEMENS SYNGO INDEX SERVICE,9C)	User Specified Worklist	LO	1
(0009,SIEMENS SYNGO INDEX SERVICE,9D)	User Specified Worklist Study Registration Time	DT	1
(0009,SIEMENS SYNGO INDEX SERVICE,9E)	User Specified Worklist Study Registration User	LO	1
(0009,SIEMENS SYNGO INDEX SERVICE,9F)	User Specified Worklist Sequence	SQ	1-n
(0009,SIEMENS SYNGO INDEX SERVICE,A0)	Sender System Device Name	LO	1
(0009,SIEMENS SYNGO INDEX SERVICE,A1)	Instance Repetition Time	DS	1
(0009,SIEMENS SYNGO INDEX SERVICE,A2)	Instance Effective Echo Time	FD	1
(0009,SIEMENS SYNGO INDEX SERVICE,A3)	Instance Inversion Times	FD	1-n
(0009,SIEMENS SYNGO INDEX SERVICE,A4)	Instance Nominal Cardiac Trigger Delay Time	FD	1
(0009,SIEMENS SYNGO INDEX SERVICE,A5)	Instance Diffusion b-value	FD	1
(0009,SIEMENS SYNGO INDEX SERVICE,A6)	Instance Creator Entity	CS	1
(0009,SIEMENS SYNGO INDEX SERVICE,A7)	Data Source	AE	1
(0009,SIEMENS SYNGO INDEX SERVICE,A8)	Study Availability	SL	1
(0009,SIEMENS SYNGO INDEX SERVICE,AC)	Detector View Code Sequence	SQ	1
(0009,SIEMENS SYNGO INDEX SERVICE,AD)	Detector Information Code Value	SH	1-2
(0009,SIEMENS SYNGO INDEX SERVICE,AE)	Detector Information Code Meaning	LO	1-2
(0009,SIEMENS SYNGO INDEX SERVICE,AF)	Detector Information Coding Scheme Designator	SH	1-2
(0009,SIEMENS SYNGO INDEX SERVICE,B0)	Relevant Body Part Examined	CS	1
(0009,SIEMENS SYNGO INDEX SERVICE,B1)	Relevant Protocol Name	LO	1
(0009,SIEMENS SYNGO INDEX SERVICE,B2)	Relevant Modality	CS	1
(0009,SIEMENS SYNGO INSTANCE MANIFEST,00)	Temporary Original Header Sequence	SQ	1
(0009,SIEMENS SYNGO INSTANCE MANIFEST,10)	syngo Index Source AE Title	AE	1
(0073,SIEMENS SYNGO LAYOUT PROTOCOL,02)	Hanging Protocol Excellence Rank	US	1
(0073,SIEMENS SYNGO LAYOUT PROTOCOL,06)	Data Sharing Flag	CS	1
(0073,SIEMENS SYNGO LAYOUT PROTOCOL,08)	Bagging Operations Sequence	SQ	1-n

DICOM Tag	Name	VR	VM
(0073,SIEMENS SYNGO LAYOUT PROTOCOL,10)	Synchronization Type	LO	1
(0073,SIEMENS SYNGO LAYOUT PROTOCOL,12)	Custom Filter Type	LO	1
(0073,SIEMENS SYNGO LAYOUT PROTOCOL,14)	Custom Sorter Type	LO	1
(0073,SIEMENS SYNGO LAYOUT PROTOCOL,20)	Selector DT Value	DT	1-n
(0073,SIEMENS SYNGO LAYOUT PROTOCOL,22)	Selector DA Value	DA	1-n
(0073,SIEMENS SYNGO LAYOUT PROTOCOL,24)	Selector TM Value	TM	1-n
(0073,SIEMENS SYNGO LAYOUT PROTOCOL,26)	Selector UI Value	UI	1-n
(0073,SIEMENS SYNGO LAYOUT PROTOCOL,30)	Custom Property Sequence	SQ	1
(0073,SIEMENS SYNGO LAYOUT PROTOCOL,32)	Custom Property Type	CS	1
(0073,SIEMENS SYNGO LAYOUT PROTOCOL,34)	Custom Property Name	LO	1
(0073,SIEMENS SYNGO LAYOUT PROTOCOL,36)	Custom Property Value	LT	1
(0073,SIEMENS SYNGO LAYOUT PROTOCOL,38)	Layout Property Sequence	SQ	1-n
(0073,SIEMENS SYNGO LAYOUT PROTOCOL,40)	Synchronization Sequence	SQ	1-n
(0073,SIEMENS SYNGO LAYOUT PROTOCOL,60)	Viewport Definitions Sequence	SQ	1
(0073,SIEMENS SYNGO LAYOUT PROTOCOL,62)	Protocol Type	CS	1
(0073,SIEMENS SYNGO LAYOUT PROTOCOL,70)	Display Protocol Name	SH	1
(0073,SIEMENS SYNGO LAYOUT PROTOCOL,72)	Display Protocol Description	LO	1
(0073,SIEMENS SYNGO LAYOUT PROTOCOL,74)	Display Protocol Level	CS	1
(0073,SIEMENS SYNGO LAYOUT PROTOCOL,76)	Display Protocol Creator	LO	1
(0073,SIEMENS SYNGO LAYOUT PROTOCOL,78)	Display Protocol Creation Datetime	DT	1
(0073,SIEMENS SYNGO LAYOUT PROTOCOL,7A)	Referenced Data Protocol	UI	1
(0073,SIEMENS SYNGO LAYOUT PROTOCOL,7B)	Original Display Protocol	UI	1
(0073,SIEMENS SYNGO LAYOUT PROTOCOL,7C)	Display Protocol Excellence Rank	US	1
(0073,SIEMENS SYNGO LAYOUT PROTOCOL,7E)	Layout Sequence	SQ	1-n
(0073,SIEMENS SYNGO LAYOUT PROTOCOL,80)	Layout Number	US	1
(0073,SIEMENS SYNGO LAYOUT PROTOCOL,82)	Layout Description	LO	1
(0073,SIEMENS SYNGO LAYOUT PROTOCOL,84)	Segment Sequence	SQ	1-n
(0073,SIEMENS SYNGO LAYOUT PROTOCOL,86)	Segment Number	US	1
(0073,SIEMENS SYNGO LAYOUT PROTOCOL,88)	Segment Description	LO	1
(0073,SIEMENS SYNGO LAYOUT PROTOCOL,8A)	Segment Type	CS	1
(0073,SIEMENS SYNGO LAYOUT PROTOCOL,8C)	Tile Horizontal Dimension	US	1
(0073,SIEMENS SYNGO LAYOUT PROTOCOL,8E)	Tile Vertical Dimension	US	1
(0073,SIEMENS SYNGO LAYOUT PROTOCOL,90)	Fill Order	CS	1
(0073,SIEMENS SYNGO LAYOUT PROTOCOL,92)	Segment Small Scroll Type	CS	1
(0073,SIEMENS SYNGO LAYOUT PROTOCOL,94)	Segment Small Scroll Amount	US	1
(0073,SIEMENS SYNGO LAYOUT PROTOCOL,96)	Segment Large Scroll Type	CS	1
(0073,SIEMENS SYNGO LAYOUT PROTOCOL,98)	Segment Large Scroll Amount	US	1
(0073,SIEMENS SYNGO LAYOUT PROTOCOL,9A)	Segment Overlap Priority	US	1
(0073,SIEMENS SYNGO LAYOUT PROTOCOL,9C)	Data Role View Sequence	SQ	1
(0073,SIEMENS SYNGO LAYOUT PROTOCOL,9E)	Data Role View Number	US	1
(0073,SIEMENS SYNGO LAYOUT PROTOCOL,A2)	Referenced Data Role	US	1
(0073,SIEMENS SYNGO LAYOUT PROTOCOL,A4)	Sharing Enabled	CS	1
(0073,SIEMENS SYNGO LAYOUT PROTOCOL,A8)	Referenced Data Role Views	US	2-n
(0073,SIEMENS SYNGO LAYOUT PROTOCOL,B0)	Data Protocol Name	SH	1
(0073,SIEMENS SYNGO LAYOUT PROTOCOL,B2)	Data Protocol Description	LO	1
(0073,SIEMENS SYNGO LAYOUT PROTOCOL,B4)	Data Protocol Level	CS	1
(0073,SIEMENS SYNGO LAYOUT PROTOCOL,B6)	Data Protocol Creator	LO	1
(0073,SIEMENS SYNGO LAYOUT PROTOCOL,B8)	Data Protocol Creation Datetime	DT	1
(0073,SIEMENS SYNGO LAYOUT PROTOCOL,BA)	Data Protocol Excellence Rank	US	1
(0073,SIEMENS SYNGO LAYOUT PROTOCOL,BC)	Data Protocol Definition Sequence	SQ	1-n
(0073,SIEMENS SYNGO LAYOUT PROTOCOL,BE)	Data Role Sequence	SQ	1-n
(0073,SIEMENS SYNGO LAYOUT PROTOCOL,C0)	Data Role Number	US	1
(0073,SIEMENS SYNGO LAYOUT PROTOCOL,C2)	Data Role Name	SH	1
(0073,SIEMENS SYNGO LAYOUT PROTOCOL,C4)	IsSystem	CS	1
(0073,SIEMENS SYNGO LAYOUT PROTOCOL,C6)	Selector Operations Sequence	SQ	0-n
(0073,SIEMENS SYNGO LAYOUT PROTOCOL,C8)	Selector Usage Flag	CS	1

DICOM Tag	Name	VR	VM
(0073,SIEMENS SYNGO LAYOUT PROTOCOL,CA)	Select by Attribute Presence	CS	1
(0073,SIEMENS SYNGO LAYOUT PROTOCOL,CC)	Select by Category	CS	1
(0073,SIEMENS SYNGO LAYOUT PROTOCOL,CE)	Select by Operator	CS	1
(0073,SIEMENS SYNGO LAYOUT PROTOCOL,D0)	Custom Selector Type	LO	1
(0073,SIEMENS SYNGO LAYOUT PROTOCOL,D2)	Selector Operator	CS	1
(0073,SIEMENS SYNGO LAYOUT PROTOCOL,D4)	Reformatting Required	CS	1
(0073,SIEMENS SYNGO LAYOUT PROTOCOL,D6)	Registration Data Sequence	SQ	1-n
(0073,SIEMENS SYNGO LAYOUT PROTOCOL,D8)	Reference Data Role Number	US	1
(0073,SIEMENS SYNGO LAYOUT PROTOCOL,DA)	Model Data Sequence	SQ	1-n
(0073,SIEMENS SYNGO LAYOUT PROTOCOL,DC)	Model Data Role Number	US	1
(0073,SIEMENS SYNGO LAYOUT PROTOCOL,DE)	Fusion Display Sequence	SQ	1-n
(0073,SIEMENS SYNGO LAYOUT PROTOCOL,E0)	Transparency	FD	1
(0073,SIEMENS SYNGO LAYOUT PROTOCOL,E2)	Time Point	CS	1
(0073,SIEMENS SYNGO LAYOUT PROTOCOL,E4)	First Time Point Token	LO	1
(0073,SIEMENS SYNGO LAYOUT PROTOCOL,E6)	Last Time Point Token	LO	1
(0073,SIEMENS SYNGO LAYOUT PROTOCOL,E8)	Intermediate Time Point Token	LO	1
(0073,SIEMENS SYNGO LAYOUT PROTOCOL,EA)	Data Processor Sequence	SQ	1-n
(0073,SIEMENS SYNGO LAYOUT PROTOCOL,EC)	Data Processor Type	LO	1
(0073,SIEMENS SYNGO LAYOUT PROTOCOL,EE)	Template Data Role Sequence	SQ	1-n
(0073,SIEMENS SYNGO LAYOUT PROTOCOL,F0)	View Sequence	SQ	1
(0073,SIEMENS SYNGO LAYOUT PROTOCOL,F4)	View Type	LO	1
(0073,SIEMENS SYNGO LAYOUT PROTOCOL,F6)	Custom Bagging Type	LO	1
(0073,SIEMENS SYNGO LAYOUT PROTOCOL,F8)	Referenced Display Segment Number	US	1
(0073,SIEMENS SYNGO LAYOUT PROTOCOL,FA)	Data Role Type	LO	1
(0073,SIEMENS SYNGO LAYOUT PROTOCOL,46)	Internal Flag	CS	1
(0073,SIEMENS SYNGO LAYOUT PROTOCOL,FC)	Unassigned Flag	CS	1
(0073,SIEMENS SYNGO LAYOUT PROTOCOL,FE)	Initial Display Scroll Position	CS	1
(0073,SIEMENS SYNGO LAYOUT PROTOCOL,04)	Template Data Role ID	CS	1
(0073,SIEMENS SYNGO LAYOUT PROTOCOL,16)	Reference Template Data Role ID	CS	1
(0073,SIEMENS SYNGO LAYOUT PROTOCOL,18)	Model Template Data Role ID	CS	1
(0073,SIEMENS SYNGO LAYOUT PROTOCOL,28)	Referenced Template Data Role	CS	1
(0073,SIEMENS SYNGO LAYOUT PROTOCOL,42)	Presentation Creator Type	CS	1
(0073,SIEMENS SYNGO LAYOUT PROTOCOL,44)	Cine Navigation Type	CS	1
(0073,SIEMENS SYNGO LAYOUT PROTOCOL,48)	Semantic Naming Strategy	LO	1
(0073,SIEMENS SYNGO LAYOUT PROTOCOL,50)	Parameter String	LO	1
(0073,SIEMENS SYNGO LAYOUT PROTOCOL,52)	Sorting Order	CS	1
(0073,SIEMENS SYNGO LAYOUT PROTOCOL,54)	syngo Template Type	CS	1
(0073,SIEMENS SYNGO LAYOUT PROTOCOL,56)	Sorter Type	CS	1
(0073,SIEMENS SYNGO LAYOUT PROTOCOL,58)	Data Display Protocol Version	SH	1
(0073,SIEMENS SYNGO LAYOUT PROTOCOL,64)	TemplateSelectorSequence	SQ	0-n
(0073,SIEMENS SYNGO LAYOUT PROTOCOL,66)	DefaultTemplate	CS	1
(0073,SIEMENS SYNGO LAYOUT PROTOCOL,68)	IsPreferred	CS	1
(0073,SIEMENS SYNGO LAYOUT PROTOCOL,6A)	TimepointInitialValueSequence	SQ	0-n
(0073,SIEMENS SYNGO LAYOUT PROTOCOL,6C)	TimepointVariable	CS	1
(0073,SIEMENS SYNGO LAYOUT PROTOCOL,5A)	TimepointValue	CS	1
(0073,SIEMENS SYNGO LAYOUT PROTOCOL,5B)	SharingGroupSequence	CS	1
(0073,SIEMENS SYNGO LAYOUT PROTOCOL,5C)	TemplateSelectorOperator	CS	1
(0073,SIEMENS SYNGO LAYOUT PROTOCOL,5D)	SharingType	CS	1
(0073,SIEMENS SYNGO LAYOUT PROTOCOL,FF)	VRT Preset	LO	1
(0029,SIEMENS SYNGO MODULES,51)	Incomplete Frame	CS	1
(0029,SIEMENS SYNGO MODULES,52)	Presentation UserData	UT	1
(0071,SIEMENS SYNGO OBJECT GRAPHICS,00)	syngo Graphic Object Sequence	SQ	1-n
(0071,SIEMENS SYNGO OBJECT GRAPHICS,01)	Fill Style Version	SL	1
(0071,SIEMENS SYNGO OBJECT GRAPHICS,02)	Fill Background Color	FL	4
(0071,SIEMENS SYNGO OBJECT GRAPHICS,03)	Fill Foreground Color	FL	4
(0071,SIEMENS SYNGO OBJECT GRAPHICS,04)	Siemens Fill Mode	SL	1

DICOM Tag	Name	VR	VM
(0071,SIEMENS SYNGO OBJECT GRAPHICS,05)	Siemens Fill Pattern	OB	1
(0071,SIEMENS SYNGO OBJECT GRAPHICS,06)	Line Style Version	SL	1
(0071,SIEMENS SYNGO OBJECT GRAPHICS,07)	Line Background Color	FL	4
(0071,SIEMENS SYNGO OBJECT GRAPHICS,08)	Line Foreground Color	FL	4
(0071,SIEMENS SYNGO OBJECT GRAPHICS,09)	Line Type	DS	1
(0071,SIEMENS SYNGO OBJECT GRAPHICS,10)	Siemens Line Thickness	DS	1
(0071,SIEMENS SYNGO OBJECT GRAPHICS,11)	Line Shadow X Offset	DS	1
(0071,SIEMENS SYNGO OBJECT GRAPHICS,12)	Line Shadow Y Offset	DS	1
(0071,SIEMENS SYNGO OBJECT GRAPHICS,13)	Siemens Shadow Style	DS	1
(0071,SIEMENS SYNGO OBJECT GRAPHICS,14)	Shadow Color	FL	4
(0071,SIEMENS SYNGO OBJECT GRAPHICS,15)	Stipple Pattern	DS	1
(0071,SIEMENS SYNGO OBJECT GRAPHICS,16)	Line Anti Aliasing	DS	1
(0071,SIEMENS SYNGO OBJECT GRAPHICS,17)	Line-Z-Blend Flag	CS	1
(0071,SIEMENS SYNGO OBJECT GRAPHICS,18)	Text Style Version	SL	1
(0071,SIEMENS SYNGO OBJECT GRAPHICS,19)	Text Color	FL	4
(0071,SIEMENS SYNGO OBJECT GRAPHICS,1A)	Connection Line Width Selected	DS	1
(0071,SIEMENS SYNGO OBJECT GRAPHICS,1B)	Connection Line Stipple Pattern	SL	1
(0071,SIEMENS SYNGO OBJECT GRAPHICS,1C)	Connection Line Width	FL	4
(0071,SIEMENS SYNGO OBJECT GRAPHICS,20)	Text Horizontal Align	SL	1
(0071,SIEMENS SYNGO OBJECT GRAPHICS,21)	Text Vertical Align	SL	1
(0071,SIEMENS SYNGO OBJECT GRAPHICS,22)	Text Shadow X Offset	DS	1
(0071,SIEMENS SYNGO OBJECT GRAPHICS,23)	Text Shadow Y Offset	DS	1
(0071,SIEMENS SYNGO OBJECT GRAPHICS,24)	Text Shadow Style	SL	1
(0071,SIEMENS SYNGO OBJECT GRAPHICS,25)	Text Shadow Color	FL	4
(0071,SIEMENS SYNGO OBJECT GRAPHICS,26)	Text Log Font	CS	1-n
(0071,SIEMENS SYNGO OBJECT GRAPHICS,27)	Text-Z-Blend Flag	CS	1
(0071,SIEMENS SYNGO OBJECT GRAPHICS,28)	syngo Graphic Bit Mask	OB	1
(0071,SIEMENS SYNGO OBJECT GRAPHICS,29)	Visibility Flag	CS	1
(0071,SIEMENS SYNGO OBJECT GRAPHICS,30)	syngo Graphic Sensitivity	SL	1
(0071,SIEMENS SYNGO OBJECT GRAPHICS,31)	syngo Graphic Pick Mode Type	SL	1
(0071,SIEMENS SYNGO OBJECT GRAPHICS,32)	syngo Graphic Layer	SL	1
(0071,SIEMENS SYNGO OBJECT GRAPHICS,33)	syngo Graphic Object Version	SL	1
(0071,SIEMENS SYNGO OBJECT GRAPHICS,34)	syngo Graphic Coordinate System	SL	1
(0071,SIEMENS SYNGO OBJECT GRAPHICS,35)	syngo Graphic Custom Attributes	CS	1
(0071,SIEMENS SYNGO OBJECT GRAPHICS,36)	syngo Graphic Custom Attributes Key	CS	1
(0071,SIEMENS SYNGO OBJECT GRAPHICS,37)	syngo Graphic Custom Attributes Value	CS	1
(0071,SIEMENS SYNGO OBJECT GRAPHICS,38)	syngo Graphic View Name	CS	1
(0071,SIEMENS SYNGO OBJECT GRAPHICS,39)	syngo Graphic Data	DS	3
(0071,SIEMENS SYNGO OBJECT GRAPHICS,40)	syngo Graphic Type	CS	1
(0071,SIEMENS SYNGO OBJECT GRAPHICS,41)	Number of syngo Graphic Points	US	1
(0071,SIEMENS SYNGO OBJECT GRAPHICS,42)	Axis Main Tick Length	DS	1
(0071,SIEMENS SYNGO OBJECT GRAPHICS,43)	Axis Detail Tick Length	DS	1
(0071,SIEMENS SYNGO OBJECT GRAPHICS,44)	Axis Main Tick Spacing	DS	1
(0071,SIEMENS SYNGO OBJECT GRAPHICS,45)	Axis Detail Tick Spacing	DS	1-n
(0071,SIEMENS SYNGO OBJECT GRAPHICS,46)	Axis Main Tick Count	DS	1
(0071,SIEMENS SYNGO OBJECT GRAPHICS,47)	Axis Detail Tick Count	DS	1
(0071,SIEMENS SYNGO OBJECT GRAPHICS,48)	Axis Tick Behavior	SL	1
(0071,SIEMENS SYNGO OBJECT GRAPHICS,49)	Axis Tick Alignment	SL	1
(0071,SIEMENS SYNGO OBJECT GRAPHICS,50)	Axis Step	DS	1
(0071,SIEMENS SYNGO OBJECT GRAPHICS,51)	Axis Step Index	SL	1
(0071,SIEMENS SYNGO OBJECT GRAPHICS,52)	Axis Text Format	CS	1
(0071,SIEMENS SYNGO OBJECT GRAPHICS,53)	Axis Show Center Text Flag	CS	1
(0071,SIEMENS SYNGO OBJECT GRAPHICS,54)	Axis Show Tick Text Flag	CS	1
(0071,SIEMENS SYNGO OBJECT GRAPHICS,55)	Bitmap X Orientation	DS	3
(0071,SIEMENS SYNGO OBJECT GRAPHICS,56)	Bitmap Y Orientation	DS	3
(0071,SIEMENS SYNGO OBJECT GRAPHICS,57)	syngo Graphic Blob	OB	1

DICOM Tag	Name	VR	VM
(0071,SIEMENS SYNGO OBJECT GRAPHICS,58)	syngo Graphic Interpolation	CS	1
(0071,SIEMENS SYNGO OBJECT GRAPHICS,59)	syngo Graphic Angle	DS	1
(0071,SIEMENS SYNGO OBJECT GRAPHICS,60)	syngo Graphic Size	DS	1
(0071,SIEMENS SYNGO OBJECT GRAPHICS,61)	Cut Line Side	CS	1
(0071,SIEMENS SYNGO OBJECT GRAPHICS,62)	syngo Graphic Tip Length	DS	1
(0071,SIEMENS SYNGO OBJECT GRAPHICS,63)	Cut Line Arrow Length	DS	1
(0071,SIEMENS SYNGO OBJECT GRAPHICS,64)	Line Gap Length	DS	1
(0071,SIEMENS SYNGO OBJECT GRAPHICS,65)	syngo Graphic Circle Radius	DS	1
(0071,SIEMENS SYNGO OBJECT GRAPHICS,66)	Line Distance Move	DS	1
(0071,SIEMENS SYNGO OBJECT GRAPHICS,67)	Line Marker Length	DS	1
(0071,SIEMENS SYNGO OBJECT GRAPHICS,68)	syngo Graphic Center	DS	3
(0071,SIEMENS SYNGO OBJECT GRAPHICS,69)	Range Center Area Top Left	DS	3
(0071,SIEMENS SYNGO OBJECT GRAPHICS,70)	Range Center Area Bottom Right	DS	3
(0071,SIEMENS SYNGO OBJECT GRAPHICS,71)	Range Tilt	DS	1
(0071,SIEMENS SYNGO OBJECT GRAPHICS,72)	Range Minimum Tilt	DS	1
(0071,SIEMENS SYNGO OBJECT GRAPHICS,73)	Range Maximum Tilt	DS	1
(0071,SIEMENS SYNGO OBJECT GRAPHICS,74)	syngo Graphic Width	DS	1
(0071,SIEMENS SYNGO OBJECT GRAPHICS,75)	Range Minimum Width	DS	1
(0071,SIEMENS SYNGO OBJECT GRAPHICS,76)	Range Maximum Width	DS	1
(0071,SIEMENS SYNGO OBJECT GRAPHICS,77)	syngo Graphic Height	DS	1
(0071,SIEMENS SYNGO OBJECT GRAPHICS,78)	Range Feed	DS	1
(0071,SIEMENS SYNGO OBJECT GRAPHICS,79)	Range Direction	CS	1
(0071,SIEMENS SYNGO OBJECT GRAPHICS,80)	Range Show Scans	CS	1
(0071,SIEMENS SYNGO OBJECT GRAPHICS,81)	Range Minimum Scan Distance	DS	1
(0071,SIEMENS SYNGO OBJECT GRAPHICS,82)	Range Orthogonal Height	CS	1
(0071,SIEMENS SYNGO OBJECT GRAPHICS,83)	syngo Graphic Position	DS	3
(0071,SIEMENS SYNGO OBJECT GRAPHICS,84)	syngo Graphic Closed Flag	CS	1
(0071,SIEMENS SYNGO OBJECT GRAPHICS,85)	Range Line Tip Mode	SL	1
(0071,SIEMENS SYNGO OBJECT GRAPHICS,86)	syngo Graphic List Count	SL	1
(0071,SIEMENS SYNGO OBJECT GRAPHICS,87)	Axis Flip Text Flag	CS	1
(0071,SIEMENS SYNGO OBJECT GRAPHICS,88)	Curve Diagram Type	CS	1
(0071,SIEMENS SYNGO OBJECT GRAPHICS,89)	syngo Graphic Start Angle	DS	1
(0071,SIEMENS SYNGO OBJECT GRAPHICS,90)	syngo Graphic End Angle	DS	1
(0071,SIEMENS SYNGO OBJECT GRAPHICS,91)	Live Wire Smoothness	IS	1
(0071,SIEMENS SYNGO OBJECT GRAPHICS,92)	Live Wire Spline Flag	CS	1
(0071,SIEMENS SYNGO OBJECT GRAPHICS,93)	Ellipse Circle Flag	CS	1
(0071,SIEMENS SYNGO OBJECT GRAPHICS,94)	syngo Graphic Square Flag	CS	1
(0071,SIEMENS SYNGO OBJECT GRAPHICS,95)	Curve Section Start Index	DS	1
(0071,SIEMENS SYNGO OBJECT GRAPHICS,96)	Curve Section End Index	DS	1
(0071,SIEMENS SYNGO OBJECT GRAPHICS,97)	Marker Alpha	DS	1
(0071,SIEMENS SYNGO OBJECT GRAPHICS,98)	Table Row Count	IS	1
(0071,SIEMENS SYNGO OBJECT GRAPHICS,99)	Table Column Count	IS	1
(0071,SIEMENS SYNGO OBJECT GRAPHICS,9A)	Table Row Height	DS	1
(0071,SIEMENS SYNGO OBJECT GRAPHICS,9B)	Table Column Width	DS	1
(0071,SIEMENS SYNGO OBJECT GRAPHICS,9C)	Rectangle Selection Segment Offset	IS	1
(0071,SIEMENS SYNGO OBJECT GRAPHICS,9D)	syngo Graphic Text	CS	1
(0071,SIEMENS SYNGO OBJECT GRAPHICS,A0)	Axis Tick Spacing Coordinate System	SL	1
(0071,SIEMENS SYNGO OBJECT GRAPHICS,A1)	Axis Diagram Grid Type	CS	1
(0071,SIEMENS SYNGO OBJECT GRAPHICS,A2)	Polar Plot Circle Count	SL	1
(0071,SIEMENS SYNGO OBJECT GRAPHICS,A3)	Polar Plot Lines-per-Circle	SL	1
(0071,SIEMENS SYNGO OBJECT GRAPHICS,A4)	Polar Plot Compartment Count	SL	1
(0071,SIEMENS SYNGO OBJECT GRAPHICS,A5)	Polar Plot Radius Weight	SL	1
(0071,SIEMENS SYNGO OBJECT GRAPHICS,A6)	Circle Segment Outer Radius	DS	1
(0071,SIEMENS SYNGO OBJECT GRAPHICS,A7)	Circle Segment Clockwise Flag	CS	1
(0071,SIEMENS SYNGO OBJECT GRAPHICS,A8)	Axis Diagram Auto Resize Flag	CS	1
(0071,SIEMENS SYNGO OBJECT GRAPHICS,A9)	Axis Diagram Step Start	DS	1

DICOM Tag	Name	VR	VM
(0071,SIEMENS SYNGO OBJECT GRAPHICS,B0)	Group Root	CS	1
(0071,SIEMENS SYNGO OBJECT GRAPHICS,B1)	Group Name	ST	1
(0071,SIEMENS SYNGO OBJECT GRAPHICS,B2)	syngo Graphic Annotation Sequence	SQ	1-n
(0071,SIEMENS SYNGO OBJECT GRAPHICS,B3)	Text Minimum Height	SL	1
(0071,SIEMENS SYNGO OBJECT GRAPHICS,B4)	Text Font Scaling Factor	DS	1
(0071,SIEMENS SYNGO OBJECT GRAPHICS,B5)	Text Maximum Extensions	SL	2
(0071,SIEMENS SYNGO OBJECT GRAPHICS,B6)	Text Segment Size	CS	1
(0071,SIEMENS SYNGO OBJECT GRAPHICS,B7)	Graphic Object Reference Label	SL	1
(0071,SIEMENS SYNGO OBJECT GRAPHICS,C4)	Show Grid	CS	1
(0029,SIEMENS SYNGO PRINT SERVICE,10)	Sheet Number	IS	1
(0071,SIEMENS SYNGO REGISTRATION,20)	Registered Image Sequence	SQ	1
(0071,SIEMENS SYNGO REGISTRATION,21)	Registration Is Validated Flag	CS	1
(0071,SIEMENS SYNGO REGISTRATION,22)	Deformable Registration Inverse Grid Sequence	SQ	1
(0029,SIEMENS SYNGO RWVM,50)	RWVM Version	LO	1
(0029,SIEMENS SYNGO SEGMENTATION,10)	Segmentation Inverted	CS	1
(0029,SIEMENS SYNGO SEGMENTATION,11)	Segmentation Uneditable by User	CS	1
(0029,SIEMENS SYNGO SEGMENTATION DICOM MESH PRIVATEDATA,12)	Surface Mesh Private Data	SQ	0-1
(0029,SIEMENS SYNGO SEGMENTATION DICOM MESH PRIVATEDATA,13)	Surface Mesh Private Data Task name	CS	1
(0029,SIEMENS SYNGO SEGMENTATION DICOM MESH PRIVATEDATA,14)	Surface Mesh Private Data Version Number	LO	1
(0029,SIEMENS SYNGO SEGMENTATION DICOM MESH PRIVATEDATA,15)	Surface Mesh ImagePlane Sequence	SQ	0-N
(0029,SIEMENS SYNGO SEGMENTATION DICOM MESH PRIVATEDATA,16)	ImagePlane Sequence Identifier	LO	1
(0029,SIEMENS SYNGO SEGMENTATION DICOM MESH PRIVATEDATA,17)	ImagePlane Sequence Identification Code Sequence	SQ	0-1
(0029,SIEMENS SYNGO SEGMENTATION DICOM MESH PRIVATEDATA,18)	ImagePlane Sequence Identification Code Value	SH	1
(0029,SIEMENS SYNGO SEGMENTATION DICOM MESH PRIVATEDATA,19)	ImagePlane Sequence Identification Coding Scheme Designator	SH	1
(0029,SIEMENS SYNGO SEGMENTATION DICOM MESH PRIVATEDATA,20)	ImagePlane Sequence Identification Code Meaning	LO	1
(0029,SIEMENS SYNGO SEGMENTATION DICOM MESH PRIVATEDATA,21)	Surface Mesh ImagePlane	SQ	1-N
(0029,SIEMENS SYNGO SEGMENTATION DICOM MESH PRIVATEDATA,22)	ImagePlane	FL	9
(0029,SIEMENS SYNGO SEGMENTATION DICOM MESH PRIVATEDATA,23)	ImagePlane Type	CS	0-1
(0029,SIEMENS SYNGO SEGMENTATION DICOM MESH PRIVATEDATA,24)	ImagePlane Description	LO	0-1
(0029,SIEMENS SYNGO SEGMENTATION DICOM MESH PRIVATEDATA,25)	Surface Mesh Point List Sequence	SQ	0-N
(0029,SIEMENS SYNGO SEGMENTATION DICOM MESH PRIVATEDATA,26)	Point List Identifier	LO	1
(0029,SIEMENS SYNGO SEGMENTATION DICOM MESH PRIVATEDATA,27)	Point List Identification Code Sequence	SQ	0-1
(0029,SIEMENS SYNGO SEGMENTATION DICOM MESH PRIVATEDATA,28)	Point List Identification Code Value	SH	1
(0029,SIEMENS SYNGO SEGMENTATION DICOM MESH PRIVATEDATA,29)	Point List Identification Coding Scheme Designator	SH	1
(0029,SIEMENS SYNGO SEGMENTATION DICOM MESH PRIVATEDATA,30)	Point List Identification Code Meaning	LO	1
(0029,SIEMENS SYNGO SEGMENTATION DICOM MESH PRIVATEDATA,31)	Point List Description	LO	0-1
(0029,SIEMENS SYNGO SEGMENTATION DICOM MESH PRIVATEDATA,32)	Point List	FL	1-N

DICOM Tag	Name	VR	VM
(0031,SIEMENS SYNGO SOP CLASS PACKING,10)	SOP Class Packing Sequence	SQ	1
(0031,SIEMENS SYNGO SOP CLASS PACKING,20)	Packing Version	CS	1
(0031,SIEMENS SYNGO SOP CLASS PACKING,21)	Packing Originator	CS	1
(0031,SIEMENS SYNGO SOP CLASS PACKING,30)	Original SOP Class UID	UI	1
(0031,SIEMENS SYNGO SOP CLASS PACKING,31)	Original Study Instance UID	UI	1
(0031,SIEMENS SYNGO SOP CLASS PACKING,32)	Original Series Instance UID	UI	1
(0031,SIEMENS SYNGO SOP CLASS PACKING,33)	Original SOP Instance UID	UI	1
(0031,SIEMENS SYNGO SOP CLASS PACKING,34)	Original Transfer Syntax UID	UI	1
(0031,SIEMENS SYNGO SOP CLASS PACKING,40)	Attributes to Set to zero-length	AT	1-n
(0031,SIEMENS SYNGO SOP CLASS PACKING,41)	Attributes to Remove	AT	1-n
(0031,SIEMENS SYNGO SOP CLASS PACKING,50)	Original Rows	US	1
(0031,SIEMENS SYNGO SOP CLASS PACKING,51)	Original Columns	US	1
(0031,SIEMENS SYNGO SOP CLASS PACKING,58)	Original Image Type	CS	2-n
(0031,SIEMENS SYNGO SOP CLASS PACKING,60)	Original Modality	CS	1
(0031,SIEMENS SYNGO SOP CLASS PACKING,70)	Sequence of original stream chunks	SQ	1
(0031,SIEMENS SYNGO SOP CLASS PACKING,71)	Start tag of a stream chunk	AT	1
(0031,SIEMENS SYNGO SOP CLASS PACKING,72)	End tag of a stream chunk	AT	1
(0031,SIEMENS SYNGO SOP CLASS PACKING,73)	Stream chunk is a PAYLOAD	CS	1
(0031,SIEMENS SYNGO SOP CLASS PACKING,80)	Stream chunk	OB	1
(0031,SIEMENS SYNGO SOP CLASS PACKING,10)	SOP Class Packing Sequence	SQ	1
(0031,SIEMENS SYNGO SOP CLASS PACKING,20)	Packing Version	CS	1
(0031,SIEMENS SYNGO SOP CLASS PACKING,21)	Packing Originator	CS	1
(0031,SIEMENS SYNGO SOP CLASS PACKING,30)	Original SOP Class UID	UI	1
(0031,SIEMENS SYNGO SOP CLASS PACKING,31)	Original Study Instance UID	UI	1
(0031,SIEMENS SYNGO SOP CLASS PACKING,32)	Original Series Instance UID	UI	1
(0031,SIEMENS SYNGO SOP CLASS PACKING,33)	Original SOP Instance UID	UI	1
(0031,SIEMENS SYNGO SOP CLASS PACKING,34)	Original Transfer Syntax UID	UI	1
(0031,SIEMENS SYNGO SOP CLASS PACKING,40)	Attributes to Set to zero-length	AT	1-n
(0031,SIEMENS SYNGO SOP CLASS PACKING,41)	Attributes to Remove	AT	1-n
(0031,SIEMENS SYNGO SOP CLASS PACKING,50)	Original Rows	US	1
(0031,SIEMENS SYNGO SOP CLASS PACKING,51)	Original Columns	US	1
(0031,SIEMENS SYNGO SOP CLASS PACKING,58)	Original Image Type	CS	2-n
(0031,SIEMENS SYNGO SOP CLASS PACKING,60)	Original Modality	CS	1
(0031,SIEMENS SYNGO SOP CLASS PACKING,70)	Sequence of original stream chunks	SQ	1
(0031,SIEMENS SYNGO SOP CLASS PACKING,71)	Start tag of a stream chunk	AT	1
(0031,SIEMENS SYNGO SOP CLASS PACKING,72)	End tag of a stream chunk	AT	1
(0031,SIEMENS SYNGO SOP CLASS PACKING,73)	Stream chunk is a PAYLOAD	CS	1
(0031,SIEMENS SYNGO SOP CLASS PACKING,80)	Stream chunk	OB	1
(0029,SIEMENS SYNGO TIME POINT SERVICE,01)	Time Point ID	LO	1
(0029,SIEMENS SYNGO TIME POINT SERVICE,02)	Time Point Information	LO	1
(0029,SIEMENS SYNGO TIME POINT SERVICE,50)	Studies in Time Point Sequence	SQ	1
(7FD1,SIEMENS SYNGO ULTRA-SOUND TOYON DATA STREAMING,01)	Padding	OB	1
(7FD1,SIEMENS SYNGO ULTRA-SOUND TOYON DATA STREAMING,09)	Version ID	OB	1
(7FD1,SIEMENS SYNGO ULTRA-SOUND TOYON DATA STREAMING,10)	Payload	LO	1
(7FD1,SIEMENS SYNGO ULTRA-SOUND TOYON DATA STREAMING,11)	After Payload	LO	1
(0029,SIEMENS SYNGO VOLUME,12)	Slices	US	1
(0029,SIEMENS SYNGO VOLUME,18)	Volume Level	IS	1
(0029,SIEMENS SYNGO VOLUME,30)	Voxel Spacing	DS	3
(0029,SIEMENS SYNGO VOLUME,32)	Volume Position (Patient)	DS	3
(0029,SIEMENS SYNGO VOLUME,37)	Volume Orientation (Patient)	DS	9
(0029,SIEMENS SYNGO VOLUME,40)	Resampling Flag	CS	1
(0029,SIEMENS SYNGO VOLUME,42)	Normalization Flag	CS	1

DICOM Tag	Name	VR	VM
(0029,SIEMENS SYNGO VOLUME,44)	SubVolume Sequence	SQ	1-n
(0029,SIEMENS SYNGO VOLUME,46)	Histogram Number Of Bins UL	UL	1
(0029,SIEMENS SYNGO VOLUME,47)	Volume Histogram Data	OB	1
(0029,SIEMENS SYNGO VOLUME,48)	Volume Histogram BinBase	SL	1
(0029,SIEMENS SYNGO VOLUME,50)	Volume Version	LO	1
(0029,SIEMENS SYNGO VOLUME,60)	Total Frame Count Of Referenced Instance	IS	0-1
(0031,SIEMENS SYNGO WORKFLOW,10)	WF Internal Patient UID	UI	1
(0031,SIEMENS SYNGO WORKFLOW,11)	WF Patients Death Indicator	SH	1
(0031,SIEMENS SYNGO WORKFLOW,12)	WF Patients Death Date	DA	1
(0031,SIEMENS SYNGO WORKFLOW,13)	WF Patients Death Time	TM	1
(0031,SIEMENS SYNGO WORKFLOW,14)	WF VIP Indicator	SH	1
(0031,SIEMENS SYNGO WORKFLOW,15)	WF Emergency Flag	US	1
(0031,SIEMENS SYNGO WORKFLOW,16)	Source	US	1
(0031,SIEMENS SYNGO WORKFLOW,20)	WF Internal Visit UID	SH	1
(0031,SIEMENS SYNGO WORKFLOW,25)	WF Internal ISR UID	SH	1
(0031,SIEMENS SYNGO WORKFLOW,32)	WF Control State	SH	1
(0031,SIEMENS SYNGO WORKFLOW,34)	WF Local Flag	US	1
(0031,SIEMENS SYNGO WORKFLOW,36)	WF Referenced Studies	UI	1-n
(0031,SIEMENS SYNGO WORKFLOW,40)	WF Workflow ID	LO	1
(0031,SIEMENS SYNGO WORKFLOW,41)	WF Workflow Description	LO	1
(0031,SIEMENS SYNGO WORKFLOW,42)	WF Workflow Control State	LO	1
(0031,SIEMENS SYNGO WORKFLOW,43)	WF Workflow Ad Hoc Flag	US	1
(0031,SIEMENS SYNGO WORKFLOW,44)	WF Hybrid Flag	US	1
(0031,SIEMENS SYNGO WORKFLOW,45)	WF Workflow Read State	LO	1
(0031,SIEMENS SYNGO WORKFLOW,50)	WF Workitem ID	LO	1
(0031,SIEMENS SYNGO WORKFLOW,51)	WF Workitem Name	LO	1
(0031,SIEMENS SYNGO WORKFLOW,52)	WF Workitem Type	LO	1
(0031,SIEMENS SYNGO WORKFLOW,53)	WF Workitem Roles	LO	1-n
(0031,SIEMENS SYNGO WORKFLOW,54)	WF Workitem Description	LO	1
(0031,SIEMENS SYNGO WORKFLOW,55)	WF Workitem Control State	LO	1
(0031,SIEMENS SYNGO WORKFLOW,56)	WF Claiming User	LO	1
(0031,SIEMENS SYNGO WORKFLOW,57)	WF Claiming Host	LO	1
(0031,SIEMENS SYNGO WORKFLOW,58)	WF Taskflow ID	LO	1
(0031,SIEMENS SYNGO WORKFLOW,59)	WF Taskflow Name	LO	1
(0031,SIEMENS SYNGO WORKFLOW,5A)	WF Failed Flag	US	1
(0031,SIEMENS SYNGO WORKFLOW,5B)	WF Scheduled Time	DT	1
(0031,SIEMENS SYNGO WORKFLOW,5C)	WF Workitem Ad Hoc Flag	US	1
(0031,SIEMENS SYNGO WORKFLOW,5D)	WF Patient Update Pending Flag	US	1
(0031,SIEMENS SYNGO WORKFLOW,5E)	WF Patient Mixup Flag	US	1
(0031,SIEMENS SYNGO WORKFLOW,60)	WF Client ID	LO	1
(0031,SIEMENS SYNGO WORKFLOW,61)	WF Template ID	LO	1
(0031,SIEMENS SYNGO WORKFLOW,70)	WF E-mail	LO	1
(0031,SIEMENS SYNGO WORKFLOW,81)	WF Institution Name	LO	1
(0031,SIEMENS SYNGO WORKFLOW,82)	WF Institution Address	ST	1
(0031,SIEMENS SYNGO WORKFLOW,83)	WF Institution Code Sequence	SQ	1
(0031,SIEMENS SYNGO WORKFLOW,90)	WF Issuer of Master Patient ID	UI	1
(0031,SIEMENS SYNGO WORKFLOW,A0)	Patient History Sequence	SQ	1-n
(0031,SIEMENS SYNGO WORKFLOW,A1)	Procedure Marked Deleted Flag	US	1
(0031,SIEMENS SYNGO WORKFLOW,A2)	ContextfolderId	LT	1
(0031,SIEMENS SYNGO WORKFLOW,A3)	Visible DataRoles	UT	1
(0031,SIEMENS SYNGO WORKFLOW,A4)	Preloaded	US	1
(0031,SIEMENS SYNGO WORKFLOW,A5)	TaskflowTechnology	SL	1
(0031,SIEMENS SYNGO WORKFLOW,A6)	WfWorkflowType	SH	1
(0031,SIEMENS SYNGO WORKFLOW,A7)	NumberOfRequestedProcedures	SL	1
(0031,SIEMENS SYNGO WORKFLOW,A8)	External Master Patient ID	LT	1
(0031,SIEMENS SYNGO WORKFLOW,A9)	Not To Be Archived	US	1

DICOM Tag	Name	VR	VM
(0031,SIEMENS SYNGO WORKFLOW,B0)	WorklistItemCheckSum	ST	1
(0019,SIEMENS MED NM,0F)	ICON Data Type	SL	1
(0019,SIEMENS MED NM,16)	Number of views	SS	1
(0019,SIEMENS MED NM,93)	Phase start time	SL	1-n
(0019,SIEMENS MED NM,A1)	Number of Phases	SS	1
(0019,SIEMENS MED NM,A5)	Number of repeats / phase	SS	1-n
(0019,SIEMENS MED NM,A6)	Cycles Per Repeat	SS	1-n
(0019,SIEMENS MED NM,A7)	Repeat Start time	SL	1-n
(0019,SIEMENS MED NM,A8)	Repeat Stop time	SL	1-n
(0019,SIEMENS MED NM,A9)	Effective Repeat Time	SL	1-n
(0019,SIEMENS MED NM,AA)	Acquired Cycles Per Repeat	SS	1-n
(0023,SIEMENS MED NM,01)	DICOM Reader Flag	US	1
(0033,SIEMENS MED NM,00)	Flood correction matrix Detector 1 ESoft To SR2_0	FL	n
(0033,SIEMENS MED NM,01)	Flood correction matrix Detector 2 ESoft To SR2_0	FL	n
(0033,SIEMENS MED NM,10)	COR Data for Detector 1	FL	n
(0033,SIEMENS MED NM,11)	COR Data for Detector 2	FL	n
(0033,SIEMENS MED NM,14)	MHR Y Shift data for detector 1	FL	1
(0033,SIEMENS MED NM,15)	MHR Y Shift data for detector 2	FL	1
(0033,SIEMENS MED NM,18)	NCO Data for detector 1	FL	n
(0033,SIEMENS MED NM,19)	NCO Data for detector 2	FL	n
(0033,SIEMENS MED NM,20)	Bed correction angle	FL	1
(0033,SIEMENS MED NM,21)	Gantry correction angle	FL	1
(0033,SIEMENS MED NM,22)	Bed U/D correction data	SS	n
(0033,SIEMENS MED NM,23)	Gantry L/R correction data	SS	n
(0033,SIEMENS MED NM,24)	BackProjection Correction angle head 1	FL	1
(0033,SIEMENS MED NM,25)	BackProjection Correction angle head 2	FL	1
(0033,SIEMENS MED NM,28)	Number point sources used for NCO and MHR Calibrations	SL	1
(0033,SIEMENS MED NM,29)	Crystal thickness	FL	n
(0033,SIEMENS MED NM,30)	Preset Name Used for Acquisition	LO	1
(0033,SIEMENS MED NM,31)	Camera Configuration Angle	FL	1
(0033,SIEMENS MED NM,32)	Crystal Type Starburst Or Not	LO	1
(0033,SIEMENS MED NM,33)	Gantry step for COIN acquisitions	SL	1
(0033,SIEMENS MED NM,34)	Bed step for wholebody or Coin acquisitions	FL	1
(0033,SIEMENS MED NM,35)	Transaxial acceptance width For coincidence	FL	1
(0033,SIEMENS MED NM,36)	Coincidence weight factor table	FL	n
(0033,SIEMENS MED NM,37)	Starburst Flags	SL	1
(0033,SIEMENS MED NM,38)	Pixel Scale factor	FL	1
(0035,SIEMENS MED NM,00)	Specialized TOMO Type	LO	1
(0035,SIEMENS MED NM,01)	Energy window type	LO	1
(0035,SIEMENS MED NM,02)	Wing position	SS	2
(0035,SIEMENS MED NM,03)	Loid of BlankScan Image	LO	1
(0035,SIEMENS MED NM,04)	Repeat ID	SS	1
(0035,SIEMENS MED NM,05)	Phase ID	SS	1
(0035,SIEMENS MED NM,06)	Siemens Profile 2 Image Sub type	LO	1
(0037,SIEMENS MED NM,00)	Flood correction matrix for Detector 1	OW	n
(0037,SIEMENS MED NM,80)	Flood correction matrix for Detector 2	OW	n
(0039,SIEMENS MED NM,00)	Toshiba CBF activity results	LT	1
(0039,SIEMENS MED NM,01)	Related CT Series Instance UID	LT	1
(0041,SIEMENS MED NM,01)	Whole Body Tomo Position Index	SL	1
(0041,SIEMENS MED NM,02)	Whole Body Tomo Number of Positions	SL	1
(0041,SIEMENS MED NM,03)	Horizontal Table Positon of CT Scan	FL	1
(0041,SIEMENS MED NM,04)	Effective Energy of CT Scan	FL	1
(0041,SIEMENS MED NM,05)	Long Linear Drive Information for Detector 1	FD	1-n
(0041,SIEMENS MED NM,06)	Long Linear Drive Information for Detector 2	FD	1-n
(0041,SIEMENS MED NM,07)	Trunnion Information for Detector 1	FD	1-n

DICOM Tag	Name	VR	VM
(0041,SIEMENS MED NM,08)	Trunnion Information for Detector 2	FD	1-n
(0041,SIEMENS MED NM,09)	Broad beam factor	FL	1
(0041,SIEMENS MED NM,0A)	Original Wholebody Position	FD	1
(0041,SIEMENS MED NM,0B)	Wholebody Scan Range	FD	1
(0041,SIEMENS MED NM,10)	Effective Emission Energy	FL	n
(0041,SIEMENS MED NM,11)	Tomo Frame View Duration	FL	1-n
(0043,SIEMENS MED NM,01)	Detector View Angle	FL	1-n
(0043,SIEMENS MED NM,02)	FOV Transformation Matrix	FD	16
(0043,SIEMENS MED NM,03)	View Dependent Y Shift MHR for Detector 1	FL	1-n
(0043,SIEMENS MED NM,04)	View Dependent Y Shift MHR for Detector 2	FL	1-n
(0045,SIEMENS MED NM,01)	Planar Processing String	LO	1-n
(0045,SIEMENS MED NM,03)	Framing Parameters	UT	1
(0045,SIEMENS MED NM,04)	Scan Parameters	UT	1
(0045,SIEMENS MED NM,05)	Total Counts	SL	1
(0045,SIEMENS MED NM,21)	Collimator Type ID	US	1-n
(0045,SIEMENS MED NM,22)	Point Source Number	US	1
(0045,SIEMENS MED NM,23)	Calibration Type	LO	1
(0045,SIEMENS MED NM,24)	Camera Configuration	LO	1
(0055,SIEMENS MED NM,03)	View start time	SL	1
(0055,SIEMENS MED NM,04)	Prompt Window Width for Coincidence	SS	1
(0055,SIEMENS MED NM,05)	Random Window Width for Coincidence	SS	1
(0055,SIEMENS MED NM,7E)	Collimator Thickness	FL	1-n
(0055,SIEMENS MED NM,7F)	Collimator Angular Resolution	FL	1-n
(0055,SIEMENS MED NM,C0)	Useful Field of View	SS	1-n
(0057,SIEMENS MED NM,01)	Original ImageType	LO	1
(0057,SIEMENS MED NM,02)	Dose calibration factor	FL	1
(0057,SIEMENS MED NM,03)	NM Pixel Units	LO	1
(0057,SIEMENS MED NM,04)	Decay Correction	LO	1
(0057,SIEMENS MED NM,05)	Radio Nuclide Half Life	FL	n
(0057,SIEMENS MED NM,06)	Rescale Intercept	FL	1
(0057,SIEMENS MED NM,07)	Rescale Slope	FL	1
(0057,SIEMENS MED NM,08)	Frame Reference Time	FL	n
(0057,SIEMENS MED NM,09)	Number original PET data Radiopharmaceutical Info Sequence items	SL	1
(0057,SIEMENS MED NM,0A)	Decay Factor	FL	n
(0057,SIEMENS MED NM,0B)	Counts Source	LO	1
(0057,SIEMENS MED NM,0C)	Radionuclide Positron Fraction	FL	n
(0057,SIEMENS MED NM,0E)	Trigger Time of CT Slice	FD	1-n
(0057,SIEMENS MED NM,0F)	QSPECT Compliant Flag	SS	1
(0061,SIEMENS MED NM,01)	X Principal Ray Offset Detector 1	FL	1-n
(0061,SIEMENS MED NM,02)	X Principal Ray Offset Detector 2	FL	1-n
(0061,SIEMENS MED NM,05)	Y Principal Ray Offset Detector 1	FL	1-n
(0061,SIEMENS MED NM,06)	Y Principal Ray Offset Detector 2	FL	1-n
(0061,SIEMENS MED NM,09)	X Principal Ray Angle	FL	1-n
(0061,SIEMENS MED NM,0A)	Y Principal Ray Angle	FL	1-n
(0061,SIEMENS MED NM,0B)	X Short Focal Length	FL	1-n
(0061,SIEMENS MED NM,0C)	Y Short Focal Length	FL	1-n
(0061,SIEMENS MED NM,0D)	X Long Focal Length	FL	1-n
(0061,SIEMENS MED NM,0E)	Y Long Focal Length	FL	1-n
(0061,SIEMENS MED NM,0F)	X Focal Scaling	FL	1-n
(0061,SIEMENS MED NM,10)	Y Focal Scaling	FL	1-n
(0061,SIEMENS MED NM,11)	X Motion Correction Shift Detector 1	FL	1-n
(0061,SIEMENS MED NM,12)	X Motion Correction Shift Detector 2	FL	1-n
(0061,SIEMENS MED NM,15)	Y Motion Correction Shift Detector 1	FL	1-n
(0061,SIEMENS MED NM,16)	Y Motion Correction Shift Detector 2	FL	1-n
(0061,SIEMENS MED NM,19)	X Heart Center	FL	1

DICOM Tag	Name	VR	VM
(0061,SIEMENS MED NM,1A)	Y Heart Center	FL	1
(0061,SIEMENS MED NM,1B)	Z Heart Center	FL	1
(0061,SIEMENS MED NM,1C)	Image Pixel Content Type	LO	1
(0061,SIEMENS MED NM,1D)	Auto Save Corrected Series	SS	1
(0061,SIEMENS MED NM,1E)	Distorted Series Instance UID	LT	1
(0061,SIEMENS MED NM,21)	Recon Range	SS	1-n
(0061,SIEMENS MED NM,22)	Recon Orientation	LO	1
(0061,SIEMENS MED NM,23)	Recon Selected Angular Range	FL	1-n
(0061,SIEMENS MED NM,24)	Recon Transverse Angle	FL	1
(0061,SIEMENS MED NM,25)	Recon Sagittal Angle	FL	1
(0061,SIEMENS MED NM,26)	Recon X Mask Size	FL	1
(0061,SIEMENS MED NM,27)	Recon Y Mask Size	FL	1
(0061,SIEMENS MED NM,28)	Recon X Image Center	FL	1
(0061,SIEMENS MED NM,29)	Recon Y Image Center	FL	1
(0061,SIEMENS MED NM,2A)	Recon Z Image Center	FL	1
(0061,SIEMENS MED NM,2B)	Recon X Zoom	FL	1
(0061,SIEMENS MED NM,2C)	Recon Y Zoom	FL	1
(0061,SIEMENS MED NM,2D)	Recon Threshold	FL	1
(0061,SIEMENS MED NM,2E)	Recon Output Pixel Size	FL	1
(0061,SIEMENS MED NM,2F)	Scatter Estimation Method	LO	1-n
(0061,SIEMENS MED NM,30)	Scatter Estimation Method Mode	LO	1-n
(0061,SIEMENS MED NM,31)	Scatter Estimation Lower Window Weights	FL	1-n
(0061,SIEMENS MED NM,32)	Scatter Estimation Upper Window Weights	FL	1-n
(0061,SIEMENS MED NM,33)	Scatter Estimation Window Mode	LO	1-n
(0061,SIEMENS MED NM,34)	Scatter Estimation Filter	LO	1-n
(0061,SIEMENS MED NM,35)	Recon RawTomo Input Uid	LO	1-n
(0061,SIEMENS MED NM,36)	Recon CT Input Uid	LO	1
(0061,SIEMENS MED NM,37)	Recon Z Mask Size	FL	1
(0061,SIEMENS MED NM,38)	Recon X Mask Center	FL	1
(0061,SIEMENS MED NM,39)	Recon Y Mask Center	FL	1
(0061,SIEMENS MED NM,3A)	Recon Z Mask Center	FL	1
(0061,SIEMENS MED NM,3B)	Recon First slice index	SL	1
(0061,SIEMENS MED NM,3C)	Non Image UID	LT	1
(0061,SIEMENS MED NM,3D)	Non Image Series UID	LT	1
(0061,SIEMENS MED NM,3E)	Non Image Associated Parent Series UID	LT	1-n
(0061,SIEMENS MED NM,3F)	Raw Bin Times	FL	1-n
(0061,SIEMENS MED NM,51)	Raw Tomo Series UID	LT	1
(0061,SIEMENS MED NM,52)	LowRes CT Series UID	LT	1
(0061,SIEMENS MED NM,53)	HighRes CT Series UID	LT	1
(0061,SIEMENS MED NM,54)	Vector Map Offset	FL	1-4
(0061,SIEMENS MED NM,55)	Collimator Hole Length	FL	1-n
(0061,SIEMENS MED NM,56)	Collimator Entry Hole Diameter	FL	1-n
(0061,SIEMENS MED NM,57)	Collimator Exit Hole Diameter	FL	1-n
(0061,SIEMENS MED NM,58)	Collimator Front Padding Distance	FL	1-n
(0061,SIEMENS MED NM,59)	Collimator Back Spacing Distance	FL	1-n
(0061,SIEMENS MED NM,5A)	Collimator Mean Hole Area	FL	1-n
(0061,SIEMENS MED NM,5B)	Collimator Field of view	FL	1-n
(0061,SIEMENS MED NM,5C)	Collimator Septal Penetration	FL	1-n
(0061,SIEMENS MED NM,5D)	Collimator Sensitivity	FL	1-n
(0061,SIEMENS MED NM,5E)	Crystal Distance to the Interaction Plane	FL	1-2
(0061,SIEMENS MED NM,5F)	Crystal Intrinsic Resolution	FL	1-n
(0061,SIEMENS MED NM,60)	Detector 1 Focus Point - IQSPECT Heart Offset	FL	1-n
(0061,SIEMENS MED NM,61)	Detector 2 Focus Point - IQSPECT Heart Offset	FL	1-n
(0061,SIEMENS MED NM,62)	Recon Output Type	LT	1
(0061,SIEMENS MED NM,63)	NM Recon Input CT UID	LT	1
(0061,SIEMENS MED NM,64)	NM Recon Input NM UID	LT	1

DICOM Tag	Name	VR	VM
(0061,SIEMENS MED NM,65)	NM Recon Input Raw UID	LT	1
(0061,SIEMENS MED NM,66)	Recon Decay Corrected Date and Time	LT	1
(0061,SIEMENS MED NM,67)	Recon Attenuation Correction Temporal Relationship	LT	1
(0061,SIEMENS MED NM,68)	Recon Attenuation Correction Source	LT	1
(0061,SIEMENS MED NM,69)	Detector Normalization Correction	SS	1
(0061,SIEMENS MED NM,6A)	Recon Sensitivity Calibrated	SS	1
(0061,SIEMENS MED NM,6B)	Recon Image Filter	LT	1
(0061,SIEMENS MED NM,6C)	Number of Subsets	SL	1
(0061,SIEMENS MED NM,6D)	Number of Iterations	SL	1
(0061,SIEMENS MED NM,6E)	Recon Iterative Method	LT	1
(0061,SIEMENS MED NM,6F)	Reconstruction Angle	FL	2
(0061,SIEMENS MED NM,70)	NM Reconstruction Algorithm	LT	1
(0061,SIEMENS MED NM,71)	CT Transformation Matrix	FD	16
(0061,SIEMENS MED NM,72)	Adv Acquisition Zone Paramaters	FD	n
(0061,SIEMENS MED NM,73)	Adv Acquisition Zone Paramaters DataType	LT	1
(0061,SIEMENS MED NM,74)	Advanced Acq Frame Start Time	SL	1-n
(0061,SIEMENS MED NM,75)	Advanced Acq Frame End Time	SL	1-n
(0061,SIEMENS MED NM,76)	QC Motion Vector	FL	1-n
(0061,SIEMENS MED NM,77)	Acquisition Uncorrected Raw Frame Series UID	LT	1
(0061,SIEMENS MED NM,78)	Acquisition Uncorrected Raw Frame Image UID	LT	1
(0061,SIEMENS MED NM,79)	NM Recon Recon Type	LT	1
(0061,SIEMENS MED NM,7A)	Initial Assay Dose	FD	1
(0061,SIEMENS MED NM,7B)	Assay Dose Date Time	DT	1
(0061,SIEMENS MED NM,7C)	Effective Dose - OBSOLETE	FD	1
(0061,SIEMENS MED NM,7D)	Residual Dose	FD	1
(0061,SIEMENS MED NM,7E)	Residual Dose Date Time	DT	1
(0061,SIEMENS MED NM,7F)	Recon Volume Sensitivity	FD	1
(0061,SIEMENS MED NM,80)	Recon Parameter Block	LT	1
(0061,SIEMENS MED NM,81)	Legacy Corrected Series UID	LT	1
(0061,SIEMENS MED NM,82)	Legacy Corrected Image UID	LT	1
(0061,SIEMENS MED NM,83)	Collimator Septal Thickness	FL	1-n
(0061,SIEMENS MED NM,85)	View Start Times	DT	1-n
(0061,SIEMENS MED NM,86)	View Pause Durations	SL	1-n
(0061,SIEMENS MED NM,87)	Reconstruction Performance Range	SL	1
(0061,SIEMENS MED NM,88)	Injection Dose Date Time	DT	1
(0061,SIEMENS MED NM,89)	Effective Dose Date Time	DT	1
(0061,SIEMENS MED NM,8A)	Sensitivity Calibration Distance (Detector 1)	FD	1
(0061,SIEMENS MED NM,8B)	Sensitivity Calibration Distance (Detector 2)	FD	1
(0061,SIEMENS MED NM,8C)	QSPECT UTC Time zone offset	LO	1
(0061,SIEMENS MED NM,8D)	QSPECT Flag	SS	1
(0063,SIEMENS MED NM,01)	System Sensitivity Detector 1	FL	1-n
(0063,SIEMENS MED NM,02)	System Sensitivity Detector 2	FL	1-n
(0063,SIEMENS MED NM,03)	Assay Dose Detector 1	FL	1-n
(0063,SIEMENS MED NM,04)	Assay Dose Detector 2	FL	1-n
(0063,SIEMENS MED NM,05)	Residual Dose Detector 1	FL	1-n
(0063,SIEMENS MED NM,06)	Residual Dose Detector 2	FL	1-n
(0063,SIEMENS MED NM,07)	Count Pass Detector 1	FL	1-n
(0063,SIEMENS MED NM,08)	Count Pass Detector 2	FL	1-n
(0063,SIEMENS MED NM,09)	Volume Sensitivity Factor	FD	1-n
(0063,SIEMENS MED NM,0A)	Volume Sensitivity Factor Version	LO	1-n
(0063,SIEMENS MED NM,0B)	Volume Sensitivity Factor Volume	FD	1-n
(0063,SIEMENS MED NM,0C)	xSpect Quant Source Labels	LO	1-n
(0063,SIEMENS MED NM,0D)	Broadquant Volume Array	FL	1-n
(0063,SIEMENS MED NM,0E)	Broadquant Organ Names	LO	1-n
(0063,SIEMENS MED NM,0F)	Broadquant Zone Values	SS	1-n
(0063,SIEMENS MED NM,10)	Broadquant Zone Statistics	FL	1-n

DICOM Tag	Name	VR	VM
(0063,SIEMENS MED NM,11)	Isotope Half Life	FL	1-n
(0063,SIEMENS MED NM,12)	System Sensitivity Date Time	DT	1
(0063,SIEMENS MED NM,13)	Assay Sensitivity Date Time	DT	1
(0063,SIEMENS MED NM,14)	Residual Sensitivity Date Time	DT	1
(0063,SIEMENS MED NM,15)	Front End Count Rate for Detector 1	FL	1-n
(0063,SIEMENS MED NM,16)	Front End Count Rate for Detector 2	FL	1-n
(0063,SIEMENS MED NM,80)	Assay Dose List	FL	1-n
(0063,SIEMENS MED NM,81)	Assay Dose Date Time List	DT	1-n
(0065,SIEMENS MED NM,01)	Original Detector Index	SS	1
(0065,SIEMENS MED NM,02)	Siemens Planar Data Organization	LO	1
(6001,SIEMENS MED NM,00)	Data 1 for ROI 1	US	1-n
(6001,SIEMENS MED NM,01)	Data 1 for ROI 2	US	1-n
(6001,SIEMENS MED NM,02)	Data 1 for ROI 3	US	1-n
(6001,SIEMENS MED NM,03)	Data 1 for ROI 4	US	1-n
(6001,SIEMENS MED NM,04)	Data 1 for ROI 5	US	1-n
(6001,SIEMENS MED NM,05)	Data 1 for ROI 6	US	1-n
(6001,SIEMENS MED NM,06)	Data 1 for ROI 7	US	1-n
(6001,SIEMENS MED NM,07)	Data 1 for ROI 8	US	1-n
(6001,SIEMENS MED NM,08)	Data 1 for ROI 9	US	1-n
(6001,SIEMENS MED NM,09)	Data 1 for ROI 10	US	1-n
(6001,SIEMENS MED NM,0A)	Data 1 for ROI 11	US	1-n
(6001,SIEMENS MED NM,0B)	Data 1 for ROI 12	US	1-n
(6001,SIEMENS MED NM,0C)	Data 1 for ROI 13	US	1-n
(6001,SIEMENS MED NM,0D)	Data 1 for ROI 14	US	1-n
(6001,SIEMENS MED NM,0E)	Data 1 for ROI 15	US	1-n
(6001,SIEMENS MED NM,0F)	Data 1 for ROI 16	US	1-n
(6001,SIEMENS MED NM,10)	Data 2 for ROI 1	FL	1-n
(6001,SIEMENS MED NM,11)	Data 2 for ROI 2	FL	1-n
(6001,SIEMENS MED NM,12)	Data 2 for ROI 3	FL	1-n
(6001,SIEMENS MED NM,13)	Data 2 for ROI 4	FL	1-n
(6001,SIEMENS MED NM,14)	Data 2 for ROI 5	FL	1-n
(6001,SIEMENS MED NM,15)	Data 2 for ROI 6	FL	1-n
(6001,SIEMENS MED NM,16)	Data 2 for ROI 7	FL	1-n
(6001,SIEMENS MED NM,17)	Data 2 for ROI 8	FL	1-n
(6001,SIEMENS MED NM,18)	Data 2 for ROI 9	FL	1-n
(6001,SIEMENS MED NM,19)	Data 2 for ROI 10	FL	1-n
(6001,SIEMENS MED NM,1A)	Data 2 for ROI 11	FL	1-n
(6001,SIEMENS MED NM,1B)	Data 2 for ROI 12	FL	1-n
(6001,SIEMENS MED NM,1C)	Data 2 for ROI 13	FL	1-n
(6001,SIEMENS MED NM,1D)	Data 2 for ROI 14	FL	1-n
(6001,SIEMENS MED NM,1E)	Data 2 for ROI 15	FL	1-n
(6001,SIEMENS MED NM,1F)	Data 2 for ROI 16	FL	1-n
(7FE3,SIEMENS MED NM,14)	Minimum pixel value in frame	OW	n
(7FE3,SIEMENS MED NM,15)	Maximum pixel value in frame	OW	n
(7FE3,SIEMENS MED NM,16)	Total counts in frame	OW	n
(7FE3,SIEMENS MED NM,17)	View Duration	OW	n
(7FE3,SIEMENS MED NM,1B)	Pixel Overflow flag	OW	n
(7FE3,SIEMENS MED NM,1C)	Buffer Overflow	OW	n
(7FE3,SIEMENS MED NM,1E)	Frame start time	OW	n
(7FE3,SIEMENS MED NM,29)	Number of Rwaves in a frame	OW	n
(0067,SIEMENS MED MI,01)	MI Scan ID	LT	1
(0067,SIEMENS MED MI,02)	Scanner Console Generation	LO	1
(0067,SIEMENS MED MI,03)	Recon Parameters	OB	1
(0067,SIEMENS MED MI,04)	Group Reconstruction ID	LO	1
(0067,SIEMENS MED MI,05)	Device IVK	ST	1
(0067,SIEMENS MED MI,14)	Raw Data Description	LO	1

DICOM Tag	Name	VR	VM
(0067,SIEMENS MED MI,16)	Raw Data Series instance UIDs	UI	1
(0067,SIEMENS MED MI,17)	Raw Data Referenced Series instance UIDs	UI	1
(0071,SIEMENS MED PT,21)	Reference To Registration	LO	1
(0071,SIEMENS MED PT,22)	Decay Correction DateTime	DT	1
(0071,SIEMENS MED PT,23)	Registration Matrix	FD	16
(0071,SIEMENS MED PT,24)	Table Motion	CS	1
(0071,SIEMENS MED PT,25)	Lumped Constant	FD	1
(0019, SIEMENS SMS-AX IAE,00)	Bookmark XML Structure	OB	1

Interpretation of the DICOM Tags from the above table:
(gggg, pp,ee) -> (gggg, ppee)
gggg - odd group number
pp - private creator identification code
ee - private element

9.2.1 Usage of Attributes from received IODs

N/A

9.2.2 Attribute mapping

There is currently no mapping from attributes received in DICOM Modality Worklist to other attributes.

9.2.3 Coerced / Modified fields

N/A

9.3 Coded Terminology and Templates

9.3.1 Context Groups

N/A

9.3.2 Template Specifications

creates and stores, upon completion of the procedure step, a DICOM CT Radiation Dose SR object. The CT Radiation Dose SR uses template TID 10011.

9.3.2.1 CT Radiation Dose SR

Table 9-51: CT Radiation Dose

NL	Rel with Parent	VT	Concept Name	VM	Presence of Value	Value
		CONTAINER	X-Ray Radiation Dose Report	1	ALWAYS	Root node
>	HAS CONCEPT MOD	CODE	Procedure reported	1	ALWAYS	Computed Tomography X-Ray

NL	Rel with Parent	VT	Concept Name	VM	Presence of Value	Value
>>	HAS CONCEPT MOD	CODE	Has Intent	1	ALWAYS	Diagnostic Intent
>		INCLUDE	Observer Context	1-n	ALWAYS	
>	HAS OBS CONTEXT	DATETIME	Start of X-Ray Irradiation	1	ALWAYS	First Acquisition Date/Time in study
>	HAS OBS CONTEXT	DATETIME	End of X-Ray Irradiation	1	ALWAYS	Last Acquisition Date/Time in study
>	HAS OBS CONTEXT	CODE	Scope of Accumulation	1	ALWAYS	Study
>>	HAS PROPERTIES	UIDREF	UID Types	1	ALWAYS	Study Instance UID (0020,000D)
>	CONTAINS	INCLUDE	CT Accumulated Dose Data	1	ALWAYS	
>	CONTAINS	INCLUDE	CT Irradiation Event Data	1-n	ALWAYS	

Table 9-52: Observer Context

NL	Rel with Parent	VT	Concept Name	VM	Presence of Value	Value
		CONTAINER	X-Ray Radiation Dose Report	1	ALWAYS	Root node
>	HAS OBS CONTEXT	CODE	Observer Type	1	ALWAYS	Device
>	HAS OBS CONTEXT	UIDREF	Device Observer UID	1	ALWAYS	
>	HAS OBS CONTEXT	TEXT	Device Observer Name	1	ALWAYS	Name of syngo Acquistion Workplace
>	HAS OBS CONTEXT	TEXT	Device Observer Manufacturer	1	ALWAYS	Siemens Healthineers
>	HAS OBS CONTEXT	TEXT	Device Observer Model Name	1	ALWAYS	Scanner model
>	HAS OBS CONTEXT	TEXT	Device Observer Serial Number	1	ALWAYS	999999
>	HAS OBS CONTEXT	TEXT	Device Observer Physical Location During Observation	1	ALWAYS	-

Table 9-53: CT Accumulated Dose Data

NL	Rel with Parent	VT	Concept Name	VM	Presence of Value	Value
		CONTAINER	CT Accumulated Dose Data	1	ALWAYS	
>	CONTAINS	NUM	Total Number of Irradiation Events	1	ALWAYS	
>	CONTAINS	NUM	CT Dose Length Product Total	1	ALWAYS	

Table 9-54: CT Irradiation Event Data

NL	Rel with Parent	VT	Concept Name	VM	Presence of Value	Value
		CONTAINER	CT Acquisition	1	ALWAYS	
>	CONTAINS	TEXT	Acquisition Protocol	1	ALWAYS	Name of the Range
>	CONTAINS	CODE	Target Region	1	ALWAYS	Body Part Examined
>	CONTAINS	CODE	CT Acquisition Type	1	ALWAYS	
>	CONTAINS	CODE	Procedure Context	1	ALWAYS	
>	CONTAINS	UIDREF	Irradiation Event UID	1	ALWAYS	
>	CONTAINS	CONTAINER	CT Acquisition Parameters	1	ALWAYS	
>>	CONTAINS	NUM	Exposure Time	1	ALWAYS	
>>	CONTAINS	INCLUDE	Scanning Length	1	ALWAYS	
>>	CONTAINS	NUM	Nominal Single Collimation Width	1	ALWAYS	
>>	CONTAINS	NUM	Nominal Total Collimation Width	1	ALWAYS	
>>	CONTAINS	NUM	Pitch Factor	1	VNAP	
>>	CONTAINS	NUM	Number of X-Ray Sources	1	ALWAYS	
>>	CONTAINS	CONTAINER	CT X-Ray Source Parameters	1-n	ALWAYS	
>>>	CONTAINS	TEXT	Identification of the X-Ray Source	1	ALWAYS	
>>>	CONTAINS	NUM	KVP	1	ALWAYS	
>>>	CONTAINS	NUM	Maximum X-Ray Tube Current	1	ALWAYS	
>>>	CONTAINS	NUM	X-Ray Tube Current	1	ALWAYS	
>>>	CONTAINS	NUM	Exposure Time per Rotation	1	VNAP	
>	CONTAINS	CONTAINER	CT Dose	1	VNAP	
>>	CONTAINS	NUM	Mean CTDIvol	1	ALWAYS	
>>	CONTAINS	CODE	CTDIw Phantom Type	1	ALWAYS	
>>	CONTAINS	NUM	DLP	1	ALWAYS	
>>	CONTAINS	NUM	Size Specific Dose Estimate	1	ALWAYS	Only if Dose is not 0
>>>	HAS CONCEPT MOD	CODE	Measurement Method	1-N	ALWAYS	Arithmetic Average of SSDE(z)
>>>	CONTAINS	NUM	Water Equivalent Diameter	1	ALWAYS	
>>> >	HAS CONCEPT MOD	CODE	Measurement Method	1	ALWAYS	Water Equivalent Diameter From Localizer
>>>	INFERRED FROM	NUM	Size Specific Dose Estimate At Longitudinal Position z	1-n	ALWAYS	
>>> >	INFERRED FROM	NUM	Longitudinal Position Z	1	ALWAYS	

NL	Rel with Parent	VT	Concept Name	VM	Presence of Value	Value
>>>	INFERRED FROM	NUM	Water Equivalent Diameter At Longitudinal Position Z	1	ALWAYS	

Table 9-55: CT Dose Check Details

NL	Rel with Parent	VT	Concept Name	VM	Presence of Value	Value
		CONTAINER	Dose Check Alert Details	1	VNAP	Only if Dose Alert is configured
>	CONTAINS	CODE	DLP Alert Value Configured	1	ALWAYS	
>	CONTAINS	CODE	CTDIvol Alert Value Configured	1	ALWAYS	
>	CONTAINS	NUM	DLP Alert Value	1	ALWAYS	
>	CONTAINS	NUM	CTDIvol Alert Value	1	ALWAYS	
>	CONTAINS	NUM	Accumulated DLP Forward Estimate	1	ALWAYS	
>	CONTAINS	NUM	Accumulated CTDIvol Forward Estimate	1	ALWAYS	
>	CONTAINS	TEXT	Reason for Proceeding	1	ALWAYS	
>	CONTAINS	INCLUDE	Person Participant	1	ALWAYS	
		CONTAINER	Dose Check Notification Details	1	VNAP	Only if Dose Notification is configured
>	CONTAINS	CODE	DLP Notification Value Configured	1	ALWAYS	
>	CONTAINS	CODE	CTDIvol Notification Value Configured	1	ALWAYS	
>	CONTAINS	NUM	DLP Notification Value	1	ALWAYS	
>	CONTAINS	NUM	CTDIvol Notification Value	1	ALWAYS	
>	CONTAINS	NUM	DLP Forward Estimate	1	ALWAYS	
>	CONTAINS	NUM	CTDIvol Forward Estimate	1	ALWAYS	
>	CONTAINS	TEXT	Reason for Proceeding	1	ALWAYS	
>	CONTAINS	INCLUDE	Person Participant	1	ALWAYS	

Table 9-56: Device Participant

NL	Rel with Parent	VT	Concept Name	VM	Presence of Value	Value
		CODE	Device Role in Procedure	1	ALWAYS	
>	HAS PROPERTIES	TEXT	Device Manufacturer	1	ALWAYS	
>	HAS PROPERTIES	TEXT	Device Model Name	1	ALWAYS	
>	HAS PROPERTIES	TEXT	Device Serial Number	1	ALWAYS	

NL	Rel with Parent	VT	Concept Name	VM	Presence of Value	Value
>	HAS PROPERTIES	UIDREF	Device Observer UID	1	ALWAYS	

9.3.2.2 ExaminationSR

Table 9-57: Examination Report

NL	Rel with Parent	VT	Concept Name	VM	Presence of Value	Value Set Constraint
		CONTAINER	EV(1, 99CT_SOMX, ”CT Examination Report”)	1	ALWAYS	
>	CONTAINS	CONTAINER	EV(2, 99CT_SOMX, “CT Acquisition Report”)	1	ALWAYS	
>>	CONTAINS	NUM	EV(100, 99CT_SOMX, “Total mAs”)	1	ALWAYS	UNITS = EV (mAs, UCUM, “mAs”)
>>	CONTAINS	TEXT	EV(102, 99CT_SOMX, “Performing Physician Name”)	1	ALWAYS	
>>	CONTAINS	TEXT	EV(103, 99CT_SOMX, “Operators Name”)	1	ALWAYS	
>>	CONTAINS	NUM	EV(113813, DCM, “CT Dose Length Product Total”)	1	ALWAYS	UNITS = EV (mGy.cm, UCUM, "mGy.cm")
>>	CONTAINS	CONTAINER	EV(600, 99CT_SOMX, “Patient Position Attributes”)	1-n	ALWAYS	
>>>	CONTAINS	TEXT	EV(601, 99CT_SOMX, “Patient Position”)	1	ALWAYS	
>>>	CONTAINS	TEXT	EV(602, 99CT_SOMX, “Frame of reference id”)	1	ALWAYS	
>>	CONTAINS	CONTAINER	EV(550, 99CT_SOMX, “Contrast Phase”)	1-n	ANAP	
>>>	CONTAINS	TEXT	EV(121145, DCM, "Description of Material")	1	ALWAYS	
>>>	CONTAINS	NUM	EV(122091, DCM, "Volume administered")	1	ALWAYS	UNITS = EV (ml, UCUM, "ml")
>>>	CONTAINS	NUM	EV(122093, DCM, "Concentration")	1	ALWAYS	UNITS = EV (mg/ml, UCUM, "mg/ml")
>>>	CONTAINS	NUM	EV(122094, DCM, "Rate of administration")	1	ALWAYS	
>>>	CONTAINS	NUM	EV(300, 99CT_SOMX, “CM Ratio”)	1	ALWAYS	UNITS = EV (%, UCUM, "%")
>>>	CONTAINS	TEXT	EV (123011, DCM, "" Contrast/Bolus Agent)	1	ALWAYS	
>>	CONTAINS	CONTAINER	EV(113819, DCM, “CT Acquisition”)	1	ALWAYS	
>>>	CONTAINS	TEXT	EV(101, 99CT_SOMX, “Range Name”)	1-n	ALWAYS	
>>>	CONTAINS	CONTAINER	EV(4, 99CT_SOMX, “Decision Tree”	1	ALWAYS	
>>>>	CONTAINS	TEXT	EV(803, 99CT_SOMX, “Comment”	1	ANAP	“No decision tree selected”
>>>>	CONTAINS	CONTAINER	EV(5, 99CT_SOMX, “User”	1	ANAP	
>>>>	CONTAINS	CONTAINER	EV(800, 99CT_SOMX, “Attribute”	1-n	ALWAYS	
	CONTAINS	TEXT	EV(801, 99CT_SOMX, “Question”	1	ALWAYS	

NL	Rel with Parent	VT	Concept Name	VM	Presence of Value	Value Set Constraint
>>>>>>	CONTAINS	TEXT	EV(802, 99CT_SOMX, “Answer”	1	ALWAYS	
>>>>	CONTAINS	CONTAINER	EV(6, 99CT_SOMX, “System”	1	ANAP	
>>>>>	CONTAINS	CONTAINER	EV(800, 99CT_SOMX, “Attribute”	1-n	ALWAYS	
>>>>>>	CONTAINS	TEXT	EV(801, 99CT_SOMX, “Question”	1	ALWAYS	
>>>>>>	CONTAINS	TEXT	EV(802, 99CT_SOMX, “Answer”	1	ALWAYS	
>>>	CONTAINS	CONTAINER	EV(113822, DCM, “CT Acquisition Parameters”)	1-n	ALWAYS	
>>>>	CONTAINS	NUM	EV(113824, DCM, "Exposure Time")	1	ALWAYS	UNITS = EV (s, UCUM, "s")
>>>>	CONTAINS	NUM	EV(113826, DCM, "Nominal Single Collimation Width")	1	ALWAYS	UNITS = EV (mm, UCUM, "mm")
>>>>	CONTAINS	NUM	EV(204, 99CT_SOMX , “Quality Reference mAs”)	1		UNITS = EV (mAs, UCUM, "mAs")
>>>>	CONTAINS	NUM	EV(205, 99CT_SOMX , “Quality Reference mAs Low”)	1		UNITS = EV (mAs, UCUM, "mAs")
>>>>	CONTAINS	NUM	EV(206, 99CT_SOMX , “Quality Reference mAs High”)	1		UNITS = EV (mAs, UCUM, "mAs")
>>>>	CONTAINS	NUM	EV(207, 99CT_SOMX , “Effective mAs”)	1-n		UNITS = EV (mAs, UCUM, "mAs")
>>>>	CONTAINS	NUM	EV(208, 99CT_SOMX , “Effective mAs Low”)	1-n		UNITS = EV (mAs, UCUM, "mAs")
>>>>	CONTAINS	NUM	EV(209, 99CT_SOMX , “Effective mAs High”)	1-n		UNITS = EV (mAs, UCUM, "mAs")
>>>>	CONTAINS	NUM	EV(113830, DCM, "Mean CTDIvol")	1	ALWAYS	UNITS = EV (mGy, UCUM, "mGy")
>>>>	CONTAINS	TEXT	EV(113835, DCM, "CTDIw Phantom Type")	1	ALWAYS	
>>>>	CONTAINS	NUM	EV(113838, DCM, "DLP")	1	ALWAYS	UNITS = EV (mGy.cm, UCUM, "mGy.cm")
>>>>	CONTAINS	NUM	EV(113930, DCM, "Size Specific Dose Estimate")	1		UNITS = EV (mGy, UCUM, "mGy ")
>>>>	CONTAINS	NUM	EV(113980, DCM, "Water Equivalent Diamete")	1		UNITS = EV (cm, UCUM, "cm ")
>>>>	CONTAINS	NUM	EV(113812, DCM, "Total Number of Irradiation events")	1	ALWAYS	UNITS = EV ({events},UCUM, "events")
>>>>	CONTAINER	CONTAINER	EV(113831, DCM, "CT X-Ray Source Parameters")	1-n	ALWAYS	
>>>>>	CONTAINS	NUM	EV (113733, DCM, "KVP")	1	ALWAYS	UNITS = EV (kV, UCUM, "kV")
>>>>>	CONTAINS	NUM	EV (113734, DCM, "X-Ray Tube Current")	1	ANAP	UNITS = EV (mA, UCUM, "mA")
>>>>>	CONTAINS	NUM	EV (113736, DCM, "Exposure")	1	ANAP	UNITS = EV (mAs, UCUM, "mAs")

NL	Rel with Parent	VT	Concept Name	VM	Presence of Value	Value Set Constraint
>>>>>	CONTAINS	NUM	EV(200, 99CT_SOMX, “Effective Exposure”)	1	ANAP	UNITS = EV (mAs, UCUM, "mAs")
>>>>>	CONTAINS	TEXT	EV(113832, DCM, "Identification of the X-Ray Source")	1	ALWAYS	
>>>>>	CONTAINS	TEXT	EV(201, 99CT_SOMX, “Tin Filter”)	1	ALWAYS	
>>>>>	CONTAINS	TEXT	EV(202, 99CT_SOMX, “Tube Type”)	1	ALWAYS	A, B
>>>>>	CONTAINS	TEXT	EV(202, 99CT_SOMX, “Additional Letter”)	1	ALWAYS	
>>>>>	CONTAINS	TEXT	EV(203, 99CT_SOMX, “Scan Number”)	1	ALWAYS	
>>>>>	CONTAINS	NUM	EV(113826, DCM, "Nominal Single Collimation Width")	1	ALWAYS	UNITS = EV (mm, UCUM, "mm")
>>>>>	CONTAINS	TEXT	EV(106, DCM, "X-Ray Filter Material")	1	ALWAYS	None, Tin, GoldTin, Gold
>>>>	CONTAINS	NUM	EV(107, 99CT_SOMX, “Effective Bolus Trigger Level”)	1	ANAP	UNITS = EV (HU, UCUM, "HU")
>>>>	CONTAINS	NUM	EV(108, 99CT_SOMX, “Reference Bolus Trigger Level”)	1	ANAP	UNITS = EV (HU, UCUM, "HU")
>>>>	CONTAINS	NUM	EV(109, 99CT_SOMX, “Intended Bolus Trigger Level”)	1	ANAP	UNITS = EV (HU, UCUM, "HU")
>>>>	CONTAINS	CONTAINER	EV(110, 99CT_SOMX, “Enabled exposure pattern”)	1	ANAP	
>>>>>	CONTAINS	TEXT	EV(111, 99CT_SOMX, “”) Index	1-n	ANAP	

9.3.3 Private Code definitions

Table 9-58: Private Code definitions

Code Value	Code Meaning	Definition	Notes
1	CT Examination Report	Report for one CT examination	
2	CT Acquisition Report	Report for one CT acquisition	
3	Scanprotocols	Section for scan protocols within an CT examination	
100	Total mAs	Total mAs applied during one CT examination	
101	Range Name	Name of the range within a CT acquisition	
102	Performing Physicians Name	Name of the performing physician of a CT examination	
103	Operators Name	Name of the operator of a CT examination	
300	CM Ratio	Ratio of the contrast medium	
500	Contrast	Section for contrast application	
550	Contrast Phase	Contrast phase indicator	
600	Patient Position Attributes	Section for patient positions	

Code Value	Code Meaning	Definition	Notes
601	Patient Position	Patient position within a Frame of Reference	
602	Frame of reference id	Unique identifier for a Frame of Reference	

9.4 Grayscale Image Consistency

The high resolution TFT display monitor option of Somaris/10 comes with a DICOM Grayscale Standard Display Function (GSDF) compliant factory pre-setting. A typical working environment setup is assumed for ambient light.

9.5 Standard Extended / Specialized / Private SOP Classes

N/A

9.6 Private Transfer Syntaxes

No private Transfer Syntaxes are defined for or requested by Somaris/10 DICOM application.

9.7 DICOM Print SCU – detailed status displays

The following tables document the behavior of the Somaris/10 DICOM Print AE in response to messages received for the printer SOP class and the print job SOP class.

Definitions of camera symbols:

- Idle: Camera is installed and ready; idle icon is displayed.
- Interact: The user has to react in near future, but not immediately.
  Example: A camera was low in 8x10 clear sheets: LOW 8x10 CLR was sent by N-EVENT-REPORT.
- Queue Stopped: The user has to react immediately. Either the camera needs immediate interaction or a job has been aborted.
  Example: A camera is out of 8x10 clear sheets, or camera is down, or a film job is aborted.

Note: different camera symbols are displayed according to the Printer Status Info.

9.7.1 Common Status Information

Table 59: Common Printer Status Information

Printer Status Info/ Execution Status Info	Description	Message string visible in 'Status Bar'	Other action for UI/ 'camera symbol'
NORMAL	Camera is ready	Camera is ready	<None>/idle
BAD RECEIVE MGZ	There is a problem with the film receive magazine. Films from the printer cannot be transported into the magazine.	Problem with receive magazine.	<None>/interact
BAD SUPPLY MGZ	There is a problem with the film supply magazine. Films from this magazine cannot be transported into the printer.	Problem with supply magazine.	<None>/interact
CALIBRATING	Printer is performing self calibration, it is expected to be available for normal operation shortly.	Self calibration. Please wait.	<None>/idle
CALIBRATION ERR	An error in the printer calibration has been detected, quality of processed films may not be optimal.	Problem in calibration. Film quality may not be optimal.	<None>/interact
CHECK CHEMISTRY	A problem with the processor chemicals has been detected, quality of processed films may not be optimal.	Problem with chemistry. Film quality may not be optimal.	<None>/interact
CHECK SORTER	There is an error in the film sorter	Error in film sorter.	<None>/interact
CHEMICALS EMPTY	There are no processing chemicals in the processor, films will not be printed and processed until the processor is back to normal.	Camera chemistry empty. Please check.	<None>/interact
CHEMICALS LOW	The chemical level in the processor is low, if not corrected, it will probably shut down soon.	Camera chemistry low. Please check.	<None>/interact
COVER OPEN	One or more printer or processor covers, drawers, doors are open.	Camera cover, drawer or door open.	<None>/interact

Printer Status Info/ Execution Status Info	Description	Message string visible in 'Status Bar'	Other action for UI/ 'camera symbol'
ELEC CONFIG ERR	Printer configured improperly for this job.	Camera configured improperly for this job. Queue stopped.	**Queue for this camera will be STOPPED/ Queue stopped**
ELEC DOWN	Printer is not operating due to some unspecified electrical hardware problem.	Camera electrical hardware Problem.	<None>/interact
ELEC SW ERROR	Printer not operating for some unspecified software error.	Camera software problem. Queue stopped.	**Queue for this camera will be STOPPED/ Queue stopped**
EMPTY 8X10	The 8x10 inch film supply magazine is empty.	8x10 film supply empty.	<None>/interact
EMPTY 8X10 BLUE	The 8x10 inch blue film supply magazine is empty.	8x10 blue film supply empty.	<None>/interact
EMPTY 8X10 CLR	The 8x10 inch clear film supply magazine is empty.	8x10 clear film supply empty.	<None>/interact
EMPTY 8X10 PAPR	The 8x10 inch paper supply magazine is empty.	8x10 paper supply empty.	<None>/interact
EMPTY 10X12	The 10x12 inch film supply magazine is empty.	10x12 film supply empty.	<None>/interact
EMPTY 10X12 BLUE	The 10x12 inch blue film supply magazine is empty.	10x12 blue film supply empty.	<None>/interact
EMPTY 10X12 CLR	The 10x12 inch clear film supply magazine is empty.	10x12 clear film supply empty.	<None>/interact
EMPTY 10X12 PAPR	The 10x12 inch paper supply magazine is empty.	10x12 paper supply empty.	<None>/interact
EMPTY 10X14	The 10x14 inch film supply magazine is empty.	10x14 film supply empty.	<None>/interact
EMPTY 10X14 BLUE	The 10x14 inch blue film supply magazine is empty.	10x14 blue film supply empty.	<None>/interact
EMPTY 10X14 CLR	The 10x14 inch clear film supply magazine is empty.	10x14 clear film supply empty.	<None>/interact
EMPTY 10X14 PAPR	The 10x14 inch paper supply magazine is empty.	10x14 paper supply empty.	<None>/interact
EMPTY 11X14	The 11x14 inch film supply magazine is empty.	11x14 film supply empty.	<None>/interact
EMPTY 11X14 BLUE	The 11x14 inch blue film supply magazine is empty.	11x14 blue film supply empty.	<None>/interact
EMPTY 11X14 CLR	The 11x14 inch clear film supply magazine is empty.	11x14 clear film supply empty.	<None>/interact
EMPTY 11X14 PAPR	The 11x14 inch paper supply magazine is empty.	11x14 paper supply empty.	<None>/interact
EMPTY 14X14	The 14x14 inch film supply magazine is empty.	14x14 film supply empty.	<None>/interact
EMPTY 14X14 BLUE	The 14x14 inch blue film supply magazine is empty.	14x14 blue film supply empty.	<None>/interact
EMPTY 14X14 CLR	The 14x14 inch clear film supply magazine is empty.	14x14 clear film supply empty.	<None>/interact
EMPTY 14X14 PAPR	The 14x14 inch paper supply magazine is empty.	14x14 paper supply empty.	<None>/interact

Printer Status Info/ Execution Status Info	Description	Message string visible in 'Status Bar'	Other action for UI/ 'camera symbol'
EMPTY 14X17	The 14x17 inch film supply magazine is empty.	14x17 film supply empty.	<None>/interact
EMPTY 14X17 BLUE	The 14x17 inch blue film supply magazine is empty.	14x17 blue film supply empty.	<None>/interact
EMPTY 14X17 CLR	The 14x17 inch clear film supply magazine is empty.	14x17 clear film supply empty.	<None>/interact
EMPTY 14X17 PAPR	The 14x17 inch paper supply magazine is empty.	14x17 paper supply empty.	<None>/interact
EMPTY 24X24	The 24x24 inch film supply magazine is empty.	24x24 film supply empty.	<None>/interact
EMPTY 24X24 BLUE	The 24x24 inch blue film supply magazine is empty.	24x24 blue film supply empty.	<None>/interact
EMPTY 24X24 CLR	The 24x24 inch clear film supply magazine is empty.	24x24 clear film supply empty.	<None>/interact
EMPTY 24X24 PAPR	The 24x24 inch paper supply magazine is empty.	24x24 paper supply empty	<None>/interact
EMPTY 24X30	The 24x30 inch film supply magazine is empty.	24x30 film supply empty.	<None>/interact
EMPTY 24X30 BLUE	The 24x30 inch blue film supply magazine is empty.	24x30 blue film supply empty.	<None>/interact
EMPTY 24X30 CLR	The 24x30 inch clear film supply magazine is empty.	24x30 clear film supply empty.	<None>/interact
EMPTY 24X30 PAPR	The 24x30 inch paper supply magazine is empty.	24x30 paper supply empty.	<None>/interact
EMPTY A4 PAPR	The A4 paper supply magazine is empty.	A4 paper supply empty	<None>/interact
EMPTY A4 TRANS	The A4 transparency supply magazine is empty.	A4 transparency supply empty.	<None>/interact
EXPOSURE FAILURE	The exposure device has failed due to some unspecified reason.	Exposure device has failed.	<None>/interact
FILM JAM	A film transport error has occurred and a film is jammed in the printer or processor.	Film jam.	<None>/interact
FILM TRANSP ERR	There is a malfunction with the film transport, there may or may not be a film jam.	Film transport problem.	<None>/interact
FINISHER EMPTY	The finisher is empty.	Finisher is empty.	<None>/interact
FINISHER ERROR	The finisher is not operating due to some unspecified reason	Finisher problem.	<None>/interact
FINISHER LOW	The finisher is low on supplies.	Finisher low.	<None>/interact
LOW 8X10	The 8x10 inch film supply magazine is low.	8x10 film supply low.	<None>/interact
LOW 8X10 BLUE	The 8x10 inch blue film supply magazine is low.	8x10 blue film supply low.	<None>/interact
LOW 8X10 CLR	The 8x10 inch clear film supply magazine is low.	8x10 clear film supply low.	<None>/interact
LOW 8X10 PAPR	The 8x10 inch paper supply magazine is low.	8x10 paper supply low.	<None>/interact
LOW 10X12	The 10x12 inch film supply magazine is low.	10x12 film supply low.	<None>/interact
LOW 10X12 BLUE	The 10x12 inch blue film supply magazine is low.	10x12 blue film supply low.	<None>/interact

Printer Status Info/ Execution Status Info	Description	Message string visible in 'Status Bar'	Other action for UI/ 'camera symbol'
LOW 10X12 CLR	The 10x12 inch clear film supply magazine is low.	10x12 clear film supply low.	<None>/interact
LOW 10X12 PAPR	The 10x12 inch paper supply magazine is low.	10x12 paper supply low.	<None>/interact
LOW 10X14	The 10x14 inch film supply magazine is low.	10x14 film supply low.	<None>/interact
LOW 10X14 BLUE	The 10x14 inch blue film supply magazine is low.	10x14 blue film supply low.	<None>/interact
LOW 10X14 CLR	The 10x14 inch clear film supply magazine is low.	10x14 clear film supply low.	<None>/interact
LOW 10X14 PAPR	The 10x14 inch paper supply magazine is low.	10x14 paper supply low.	<None>/interact
LOW 11X14	The 11x14 inch film supply magazine is low.	11x14 film supply low.	<None>/interact
LOW 11X14 BLUE	The 11x14 inch blue film supply magazine is low.	11x14 blue film supply low.	<None>/interact
LOW 11X14 CLR	The 11x14 inch clear film supply magazine is low.	11x14 clear film supply low.	<None>/interact
LOW 11X14 PAPR	The 11x14 inch paper supply magazine is low.	11x14 paper supply low.	<None>/interact
LOW 14X14	The 14x14 inch film supply magazine is low.	14x14 film supply low.	<None>/interact
LOW 14X14 BLUE	The 14x14 inch blue film supply magazine is low.	14x14 blue film supply low.	<None>/interact
LOW 14X14 CLR	The 14x14 inch clear film supply magazine is low.	14x14 clear film supply low.	<None>/interact
LOW 14X14 PAPR	The 14x14 inch paper supply magazine is low.	14x14 paper supply low.	<None>/interact
LOW 14X17	The 14x17 inch film supply magazine is low.	14x17 film supply low.	<None>/interact
LOW 14X17 BLUE	The 14x17 inch blue film supply magazine is low.	14x17 blue film supply low.	<None>/interact
LOW 14X17 CLR	The 14x17 inch clear film supply magazine is low.	14x17 clear film supply low.	<None>/interact
LOW 14X17 PAPR	The 14x17 inch paper supply magazine is low.	14x17 paper supply low.	<None>/interact
LOW 24X24	The 24x24 inch film supply magazine is low.	24x24 film supply low.	<None>/interact
LOW 24X24 BLUE	The 24x24 inch blue film supply magazine is low.	24x24 blue film supply low.	<None>/interact
LOW 24X24 CLR	The 24x24 inch clear film supply magazine is low.	24x24 clear film supply low.	<None>/interact
LOW 24X24 PAPR	The 24x24 inch paper supply magazine is low.	24x24 paper supply low.	<None>/interact
LOW 24X30	The 24x30 inch film supply magazine is low.	24x30 film supply low.	<None>/interact
LOW 24X30 BLUE	The 24x30 inch blue film supply magazine is low.	24x30 blue film supply low.	<None>/interact
LOW 24X30 CLR	The 24x30 inch clear film supply magazine is low.	24x30 clear film supply low.	<None>/interact
LOW 24X30 PAPR	The 24x30 inch paper supply magazine is low.	24x30 paper supply low.	<None>/interact

Printer Status Info/ Execution Status Info	Description	Message string visible in 'Status Bar'	Other action for UI/ 'camera symbol'
LOW A4 PAPR	The A4 paper supply magazine is low.	A4 paper supply low.	<None>/interact
LOW A4 TRANS	The A4 transparency supply magazine is low.	A4 transparency supply low.	<None>/interact
NO RECEIVE MGZ	The film receive magazine is not available.	Film receiver not available.	<None>/interact
NO RIBBON	The ribbon cartridge needs to be replaced.	Replace ribbon cartridge.	<None>/interact
NO SUPPLY MGZ	The film supply magazine is not available.	Film supply not available.	<None>/interact
CHECK PRINTER	The printer is not ready at this time, operator intervention is required to make the printer available.	Check camera.	<None>/interact
CHECK PROC	The processor is not ready at this time, operator intervention is required to make the printer available.	Check processor.	<None>/interact
PRINTER DOWN	The printer is not operating due to some unspecified reason.	Camera down.	<None>/interact
PRINTER INIT	The printer is not ready at this time, it is expected to become available without intervention. For example, it may be in a normal warm-up state.	Camera initializing.	<None>/Idle
PRINTER OFFLINE	The printer has been disabled by an operator or service person.	Camera off-line.	<None>/interact
PROC DOWN	The processor is not operating due to some unspecified reason.	Processor down.	<None>/interact
PROC INIT	The processor is not ready at this time, it is expected to become available without intervention. For example, it may be in a normal warm-up state.	Processor initializing.	<None>/Idle
PROC OVERFLOW FL	Processor chemicals are approaching the overflow full mark.	Processor chemicals near overflow.	<None>/interact
PROC OVERFLOW HI	Processor chemicals have reached the overflow full mark.	Processor chemicals overflow.	<None>/interact
QUEUED	Print job in Queue	--	<None>/Idle
RECEIVER FULL	The film receive magazine is full.	Receiver full.	<None>/interact
REQ MED NOT INST	The requested film, paper, or other media supply magazine is installed in the printer but may be available with operator intervention.	Install media supply.	<None>/interact
REQ MED NOT AVAI	The requested film, paper, or other media requested is not available on this printer.	Media supply not available on this camera. Queue stopped. Change camera.	Queue for this camera will be STOPPED/ Queue stopped
RIBBON ERROR	There is an unspecified problem with the print ribbon.	Error with print ribbon.	<None>/interact
SUPPLY EMPTY	The printer is out of film.	Camera out of film.	<None>/interact

Printer Status Info/ Execution Status Info	Description	Message string visible in 'Status Bar'	Other action for UI/ 'camera symbol'
SUPPLY LOW	The film supply is low.	Film supply low.	<None>/interact
UNKNOWN	There is an unspecified problem.	Unspecified problem with camera.	<None>/interact

9.7.2 Additional DICOM Execution Status Information

Printer Status Info and Execution Status Info are defined terms and can therefore be extended or reduced by camera manufacturers. Therefore Somaris/10 shall be flexible.

If any other printer status info or execution status info is received (as described in Table 9.7.1, Somaris/10 will react as shown in the following table:

Table 60: Additional Printer Status Information

Printer Status / Execution	Printer / Execution Status Info	Description	Message string visible in the Job status bar	Other action for syngo / camera symbol
WARNING	<any other>	<not defined status info>	Camera info: <status info>	<None>/Interact
FAILURE	<any other>	<not defined status info>	Camera info: <status info> Queue stopped.	Queue for this camera will be STOPPED/ Queue stopped

Annex A: Index of Tables

Annex B: Table of Figures

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CE
0123

Manufacturer's note:

The CE marking applies only to Medical Devices which have been put on the market according to the EC Regulation.

Unauthorized changes to this product are not covered by the CE mark and the related Declaration of Conformity.

Caution: Federal law restricts this device to sale by or on the order of a physician, dentist, or veterinarian (21 CFR 801.109(b)(1)).

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Siemens Healthineers Headquarters
Siemens Healthcare GmbH
Henkestr. 127
91052 Erlangen
Germany
Phone: +49 9131 84-0
siemens-healthineers.com

Manufacturer
Siemens Healthcare GmbH
Henkestr. 127
91052 Erlangen
Germany

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Příloha č. 5

Kopie dokladu prokazujícího registraci osoby provádějící servis u Státního ústavu pro kontrolu léčiv

SÚKL

STÁTNÍ ÚSTAV PRO KONTROLU LÉČIV | Šrobárova 49/48, 100 00 Praha 10 | Telefon: +420 272 185 111, Fax: +420 271 732 377 | E-mail: posta@sukl.gov.cz, Web: www.sukl.gov.cz

ADRESÁT	ADRESA
Siemens Healthcare, s.r.o.	Budějovická 779/3 Praha 14000

Spisová značka	Číslo jednací	Vyřizuje/ email	Dne
sukls71521/2025	sukl89316/2025	[redacted]	12.03.2025

Vypraveno dnem předání vyznačeným na obálce provozovatelem poštovní služby, dnem odeslání datové zprávy z datové schránky Státního ústavu pro kontrolu léčiv, v případě osobního doručení dnem předání adresátovi.

POTVRZENÍ OHLÁŠENÍ ZMĚNY ÚDAJŮ

Státní ústav pro kontrolu léčiv, se sídlem v Praze 10, Šrobárova 48 (dále jen „Ústav"), jako orgán příslušný podle § 5 odst. 2 písm. c) ve spojení s § 25 zákona č. 375/2022 Sb., o zdravotnických prostředcích a diagnostických zdravotnických prostředcích in vitro, ve znění pozdějších předpisů, tímto potvrzuje ohlášení změny údajů níže uvedené osoby.

IČ	04179960
Název	Siemens Healthcare, s.r.o.
Sídlo	Budějovická 779/3, 14000, Praha- Michle
Registrační číslo	000764_ser
Činnost	Osoba provádějící servis prostředků
Kontaktní osoba	[redacted]

- osoba provádějící servis prostředků
  - Výrobci:
    - Sysmex Europe GmBH, Německo
    - CellaVision AB, Švédsko

V rámci tohoto ohlášení se mění/přidává:

- osoba provádějící servis prostředků
  - Výrobci:
    - Siemens Healthineers AG, Německo

V rámci tohoto ohlášení se odebírá:

- osoba provádějící servis prostředků
  - Výrobci:
    - Siemens Healthcare GmbH, Německo

Ohlášená osoba je povinna ve lhůtě 1 roku ode dne posledního potvrzení správnosti údajů podle § 25 odst. 2 zákona o prostředcích potvrdit správnost ohlášených údajů. Ohlášení změny údajů se považuje za potvrzení správnosti všech ostatních ohlášených údajů.

[redacted]
vedoucí Oddělení systémů
Státního ústavu pro kontrolu léčiv

Příloha č. 6

Seznam úkonů preventivní údržby

Provádění výrobcem předepsaných plánovaných prohlídek a údržby:

• preventivní údržba – prováděna průběžně (Condition based, na základě požadavku servisního SW)

Zajištění provozních revizí a revizních zpráv:

• Elektrická bezpečnost (revize) - 1x ročně
• Bezpečnostně Technická Kontrola - 1x ročně
• Měření diagnostických monitorů - 1x ročně
• Zkoušky Dlouhodobé Stability - 1x ročně

Dodávky a instalace prvků, které jsou určeny k pravidelné výměně, dodávky a instalace veškerých náplní:

• UPS baterie 1 x 4 roky