

# Acuo

## Release Notes

Version: 6.0.x

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## Notes and Limitations (All Releases)

The content in this section includes notable notes and/or limitations, along with corresponding workarounds where applicable. These should generally be reviewed when an upgrade is performed at the Hotfix level or above (for example, going from Hotfix 2 to 3, or upgrading from 6.0.1 to 6.0.2).

### All Versions - Notes and Limitations

#### Tag Mapper - Note on ReadFile Command and Mapped Drives

- The Tag Mapper command “ReadFile” should not be used with references to mapped drives (due to variations in availability of mapped network drives).
- A shared path should be used. For example:
  - ReadFile “\\ServerA\Share\Acuo\TagMapper\TagMapper\_Commands.txt”

### Version 6.0.4 – Notes and Limitations

#### Note on 6.0.4 Install/Upgrade Support

- Currently only new installs are supported for 6.0.4. Upgrade installs from previous versions are expected to be supported with the release of 6.0.4 Hotfix 1.

### Version 6.0.3 – Notes and Limitations

#### Tag Mapper – Upgrade Issue (6.0.1 to 6.0.3)

- Summary of Issue and Symptoms:
  - Tag Mapper functionality does not work upon upgrade from 6.0.1 to 6.0.3.
  - Global Tag Mapper files are removed when 6.0.1 is uninstalled.
  - Tag Mapper instance files (Tag Mapper functionality enabled on Called AE Names or External DICOM Devices) remain in the old directory although are not restored to the correct/new directory
  - This issue is not known to occur on 6.0.2 to 6.0.3 upgrades.
    - Tag Mapper command and log files are backed up to the C:\ProgramData\Acuo Technologies\Backup\TagMapper\ directory. They are restored automatically with install/upgrade of 6.0.3.
- Solution:
  - Backup all Tag Mapper files before uninstalling version 6.0.1. This should be part of the normal upgrade process (reference the Installation and Setup Guide for further details).
  - Manually restore any Tag Mapper directories/files.

- Global Tag Mapper Notes:
  - Old Directory (from 6.0.1) for Global Tag Mapper Files
    - C:\Program Files (x86)\Acuo Technologies\TagMapper
  - Copy the backed up Tag Mapper files to the following new directory after installing 6.0.3: **C:\Program Files\Acuo Technologies\TagMapper**
- Tag Mapper Instance Directory/File Notes (Tag Mapper Enabled for Called AE or External DICOM Device)
  - Old Directory (from 6.0.1):
    - C:\Program Files (x86)\Acuo Technologies\TagMapper\<instance>
  - New Directory (6.0.3):
    - C:\Program Files\Acuo Technologies\TagMapper\<instance>

## Pruner Tasks After Upgrade – Check Option to Run Whether User Is Logged On Or Not

- Summary of Issue and Symptoms:
  - Upon upgrade (6.0.1 or 6.0.2 to 6.0.3), Pruner tasks do not have the option selected for “Run whether user is logged on or not”.
- Further Details:
  - If Retention/Purge policies are configured, there are corresponding “Acuo DICOM Pruner” tasks that appear in the Windows Task Scheduler. When these tasks are configured and running normally, the option to “Run whether user is logged on or not” is selected.
  - When Acuo software is upgraded to version 6.0.3, this option is not selected. The option to “Run only when user is logged on” is selected.
  - This issue occurs due to security limitations for Windows tasks that cannot be easily modified within the Acuo installer.
    - One other related task property that is successfully changed upon upgrade is the path to the DicomPrune.exe file. In the Actions tab, the path is successfully changed from **Program Files (x86)\Acuo Technologies\AcuoMed** to **C:\Program Files\Acuo Technologies\AcuoMed**.
- Solution:
  - After the upgrade is complete, go to the Windows Task Scheduler and select the option to “Run whether user is logged on or not” for all “Acuo DICOM Pruner tasks”:
    - Right click the Task and select Properties. Change the option and enter the Service User Password. Click OK to save changes.

## XDS Upgrade Issue (6.0.1 / 6.0.2 to 6.0.3)

- Summary of Issue and Symptoms:
  - Upon upgrade of XDS from 6.0.1 or 6.0.2 to 6.0.3, jobs may become stuck in the Task Manager Queue with the following error event: “*Exception: There was no endpoint listening at http://Server1:17035/XDS/Registry that could accept the message..*”.
- Solution:

- The endpoints need to be re-entered at the following nodes:
  - Acuo XDS Registry Manager / End Points
  - Acuo XDS Repository Manager / End Points
- Examples of End Points (these are defaults; portions of these may be different):
  - Registry: *http://Server1:17035/XDS/Registry*
  - Repository: *http://Server1:17025/XDS/Repository*

## ILM Compression – Batch Queue Info Section

- Version 6.0.3 contains new ILM Options (see details below in the Enhancements section). If the option to “Compress Images” is selected, the Batch Queue info section should be left alone with the local server selected (this section is not supported and will be removed in a future release).

## AcuoSemantix Startup Event (Event ID 0) – No Impact

- The informational event below will appear when starting the AcuoSemantix Service. This event can be ignored, it has no functional impact. Below is an excerpt of the event text.
  - *The description for Event ID 0 from source AcuoSemantix cannot be found...*

## AcuoStore Install Option for RSA Encryption – Not Supported

- The AcuoStore installer contains an option for “Optional RSA Encryption” on the Setup Type window. This option should not be selected (it is not supported).
- The option for “Typical Installation” should be selected in the AcuoStore installer.

## XDS and SQL Replication – Upgrade Primary/Secondary Together

- For any sites using SQL Replication and XDS, the XDS Registry and XDS Repository should be upgraded on the Primary and Secondary sides at the same time.

## 6.0.3 to 6.0.3 Upgrade Note

- If upgrading from one 6.0.3 build to another 6.0.3 build (for example, 6.0.3.52 to 6.0.3.515), the database upgrade may not run automatically, and connection parameters may need to be re-entered. After uninstalling and re-installing software, the following steps may be needed:
  - Run the DB upgrade manually:
    - C:\Program Files\Acuo Technologies\AcuoMed\UpdateAcuoStore.exe

- C:\Program Files\Acuo Technologies\AcuoMed\UpdateAcuoMed.exe
- Re-enter the database connection parameters:
  - Right click Digital Asset Manager Server (AcuoStore) and Image Manager Server (AcuoMed), select Change Database Connection.
- Re-enter the DILIB connection parameters:
  - Right click Image Manager Server, select Properties, Storage Server DILIB Connection tab.

## Version 6.0.1 and 6.0.2 – Notes and Limitations

### Tag Mapper on Acuo-Acuo Connections (6.0.2 HF3, 6.0.2 HF4)

- Summary of Issue and Symptoms:
  - Upon upgrade to 6.0.2 HF3 or HF4, Tag Mapper functionality on Acuo-Acuo connections stops working.
- Further Details:
  - In 6.0.2 HF3, an issue was resolved where Tag Mapper was (incorrectly) taking effect on Acuo-Acuo connections. The preferred default behavior is to utilize Tag Mapper when data enters or exits an Acuo system to/from a non-Acuo system, and not for Acuo-Acuo transmissions.
  - This change was made so data can be more reliably kept in sync across Acuo systems.
- Solution:
  - There are 2 solutions/workarounds that will effectively enable Tag Mapper on Acuo-Acuo transmissions (revert to same behavior prior to HF3):
    - **Option 1:** On Acuo sending (router) systems, in the configuration of the External DICOM Device (the other Acuo system), Options tab, enable Outbound Tag Mapper by checking the “Enable TagMapper” option. This will force the outbound Association to “non-Acuo” mode, and therefore enable Tag Mapper on the Acuo-Acuo connection.
      - After enabling Tag Mapper, a single “dummy” command needs to be entered in the Tag Mapper command file in order for Tag Mapper to initialize properly (example: *set verbose true*).
    - **Option 2:** On the Acuo receiving (archive) system, enable the following registry setting:
      - ...\\AcuoMed\\Server\\DiLibOptions2 = 0x00400000 (hex)
      - Note: For 6.0.2 HF3, this setting can only be used with a HF3 interim patch released after May 15, 2016.

### AcuoMed Not Starting After Upgrade – Shared Configuration (6.0.2 HF3)

- Summary of Issue and Symptoms:
  - Upon upgrade to 6.0.2 HF3, AcuoMed repeatedly crashes upon startup on a Shared Configuration environment.

- In the AcuoMed Database, T\_Hosts table, the HOST\_APP\_SERVER\_FARM column shows a large list of duplicate server names (hundreds or more). Under normal conditions a single list of servers in the farm should be present.
- Further Details:
  - This is an issue that occurred at a single site upon upgrade to 6.0.2 HF3. This source of this issue was not identified or reproduced (it is believed to be related to an issue that was resolved in an earlier version, and/or a unique combination of characteristics on the server before joining the farm).
- Solution:
  - Clear out the duplicate server names in the AcuoMed Database, T\_Hosts table, HOST\_APP\_SERVER\_FARM column. The end result should be a single list of servers in the Shared Configuration farm (each server listed once).

## Shared Configuration – Windows Authentication Requirement

- Summary Note: Shared Configuration environments require databases to be using Windows Authentication (not SQL Server authentication).

## Dedicated Writer – Upgrade Issue

- Summary of Issue and Symptoms:
  - Writer stops working after upgrade to 6.0.1 HF4 or 6.0.2 HF2 (any upgrade from a prior version to these versions or higher could be impacted).
  - Occurs only on systems utilizing a dedicated writer.
  - In the AcuoStore Database, STORAGE\_FILE table, the STF\_ARCHIVE\_LOCATION is not getting populated.
  - Local cache starts filling up.
- Further Details:
  - In 6.0.1 HF4 and 6.0.2 HF2 a designed change was introduced where the STF\_ATTACHED\_FILE column (STORAGE\_FILE table of AcuoStore DB) is no longer getting populated with XML (this was removed to increase performance). This XML column contained info that would help track which DICOM database the file belonged to.
  - On dedicated writer systems, if the MMC is not connected to a valid instance of the AcuoMed database (after an upgrade to the above versions), this resulted in the writer not being able to grab the metadata from the DICOM database.
- Solution:
  - On the dedicated writer system, change the AcuoMed database connection parameters to a valid instance of the AcuoMed database.
    - Right click the Image Manager Server, select Change Database Connection, and enter info in the 2 fields for SQL Server instance and the Database Name (these should be blank on a system that is experiencing this issue).
    - Restart Services.

## AcuoHA – Job Fails to Complete (400 Error)

- Summary of Issue and Symptoms:

- An AcuoHA job fails to complete successfully with the following error message:  
“<LastError>Communication Exception.The remote server returned an unexpected response:  
(400) Bad Request.</LastError>”
- Issue known to occur on 6.0.2 HF3. Affects the AcuoHA Subscriber.
- Further Details:
  - This happens when the Subscriber WCF bindings are not large enough (a series contains large counts of images). Since hotfix upgrades do not alter existing configuration files, a manual change to the configuration file is needed.
- Solution: Use the following binding in the “AHASubscriberSrv.exe.config” file:
  - <webHttpBinding>
    - <binding name="TheWebHttpBinding" maxBufferSize="2147483647" maxReceivedMessageSize="2147483647">
      - <readerQuotas maxDepth="2147483647" maxStringContentLength="2147483647" maxArrayLength="2147483647" maxBytesPerRead="2147483647" maxNameTableCharCount="2147483647" />
    - </binding>
    - <binding name="TheSecureWebHttpBinding" maxBufferSize="2147483647" maxReceiveMessageSize="2147483647">
      - <readerQuotas maxDepth="2147483647" maxStringContentLength="2147483647" maxArrayLength="2147483647" maxBytesPerRead="2147483647" maxNameTableCharCount="2147483647" />
      - <security mode="Transport">
        - <transport clientCredentialType="Certificate" />
      - </security>
    - </binding>
  - </webHttpBinding>

## Global Tag Mapper – Upgrade Issue (6.0.2)

- Summary of Issue and Symptoms:
  - Global Tag Mapper functionality does not work upon upgrade to 6.0.2 (from 6.0.0 or 6.0.1).
- Solution:
  - The Global Tag Mapper file must be backed up manually prior to upgrade (uninstall), and restored manually after upgrade.

## Error Retrieving XDS Manifest (6.0.2)

- Summary of Issue and Symptoms:
  - Error occurs attempting to retrieve the DICOM Manifest (after upgrading from 6.0.1 to 6.0.2).
- Solution:
  - Copy the “IHEAudit.dll” file from the following XDS Accelerator folder:

- C:\Program Files (x86)\Acuo Technologies\XDSAccelerator
- Rename the “IHEAudit.dll” file in the AcuoMed folder (so it can be restored if necessary):
  - C:\Program Files (x86)\Acuo Technologies\AcuoMed
- Paste in the “IHEAudit.dll” file from the Accelerator folder (into the AcuoMed folder).
- Close and re-open the MMC.
- Restart services.

## Acuo Release 6.0.4 (April 10, 2017)

Version 6.0.4 is a Service Pack release containing areas of new functionality, improvements to overall system performance and stability, and other various changes. Updates are found below, with further details found in the corresponding Product Guides.

For installation instructions, refer to the *Acuo Installation and Setup Guide 6.0.x*.

### Enhancements

#### OS and SQL Support

- Added support for Windows Server 2016 and SQL Server 2016.

#### AcuoStore – Eliminated Usage of Folder Links

- In previous versions (6.0.3 and earlier), entries were created in the STORAGE\_FOLDER table of the AcuoStore Database with references/links used for clip containerization, image information from DICOM Databases, and AcuoHA processing.
- In version 6.0.4, these entries are no longer created. Information related to clip containerization and AcuoHA processing has been moved to the STORAGE\_FILE table.
- This change will result in improved database efficiencies and better performance with archive device reading/writing.

#### AcuoStore – Moved Image Level Tags to DICOM DB

- In prior versions (6.0.3 and earlier), information for several Image level tags was stored in the AcuoStore Database (STORAGE\_FILE table).
- In version 6.0.4, this Image level tag information is now stored in the DICOM Database (T\_Image table).

- Note: Only data that is stored new in 6.0.4 will have the Image level tag information populated in the DICOM DB. Data stored in version 6.0.3 or earlier will still have information in the AcuoStore DB.
- This change should result in improved performance for queries when Image level tag information is needed.

## AcuoStore – Eliminated Usage of XML Column for Image Metadata

- In version 6.0.4, the column STF\_ATTACHED\_FILE (AcuoStore Database, STORAGE\_FILE table) is no longer used (this is the case for new installs and upgrades from previous versions).
- In previous versions, this XML column was occasionally used to store/access image metadata information.

## Improved Image Deletion Performance

- Improved performance on image deletion. This is utilized through an additional configuration option where the default thread count of 1 can be modified.
- Additional details on the new option:
  - Location of Option: Image Manager Server node / Properties / Options tab / Image Deletion section (field for Number of Threads).
  - Default thread count value: 1 (allowed values are 1-10)
- This setting applies to all sources of deletes except those resulting from Retention/Purge policies.

## AcuoMed – Batch Store Correction Option (Patient Name Conflicts)

- New Batch Store Correction options have been added to the existing Conflict Analyzer (Analyze the Job versus the Database) screen. The purpose of this feature is to assist with correcting data that has caused Batch Store jobs to go into a Paused or On Hold status due to a data conflict.
- In 6.0.4, this feature can only be used to resolve Patient Name conflicts but additional types of Batch Store conflicts may be addressed in a future release.
- Two options are available to resolve Patient Name conflicts:
  - **Apply Fields from DB to Image:** This option will update the Patient Name for the Batch Store job to match the Patient Name in the Target Database. This update may be applied to a single Batch Store job (single image) or to Batch Store jobs (all images) for the Patient which are currently Paused/On Hold to the same destination.
  - **Change Patient Name to the Batch Store value:** This option will update the Patient Name on the conflicting Patient record in the Target Database to match the Patient Name in the Batch Store job.
- When updates are applied, the Batch Store jobs will be automatically resumed and rescheduled to run.

- When using this option in conjunction with multiple domains\IPIDs (Patient Identity Management enabled), patients in different domains should be stored to separate DICOM Databases (this is the normal recommendation when multiple domains are used).

## AcuoMed – Batch Store Enhancements

- Added an option to the Batch Store Manager to perform a DumpAsiff for an individual job. Additional details on this option:
  - To run this option, right click on a job and select “View DICOM Dump”.
  - The option is not present for jobs with a status of Completed or Cancelled.
  - If the file is missing or not available, the following will be listed at the top of the output window: *“The file is not accessible at this time.”*
  - The new option in Batch Store works similarly to the “View DICOM Dump” option in Patient Management at the Image level. It runs DumpAsiffContents.exe on the associated file and outputs results to a text file.
- Added the following columns to the Batch Store Manager:
  - **SOP Class UID:** Displays the SOP Class UID of an inbound or outbound store.
    - Example: 1.2.840.10008.5.1.4.1.1.4
  - **Issuer of Patient ID:** Displays data from the Issuer of Patient ID tag (0010, 0021).

## AcuoMed – Miscellaneous

- Added the original (Source) Calling AE Title to the DICOM Database, T\_Image table.
  - New column in T\_Image table: **IM\_Original\_Calling\_AE\_Name**
  - This is also visible in Patient Management from the “View Image Metadata Option...” (image level). The new field is titled “Image Origination AE”.
- Added options to the Standard Data Dictionary node to add a tag or delete a tag previously added in 6.0.4. Additional details:
  - Location of Standard Data Dictionary node: Image Manager Server / DICOM Configuration / DICOM Data Dictionary / Standard Data Dictionary
  - To add a tag, right click the Standard Data Dictionary node and select “Add”. Enter info as necessary and click the Add button.
  - To delete a tag, right click a tag that was previously added and select “Delete”.
    - Note: The pre-loaded DICOM standard dictionary tags cannot be deleted.
  - A tag is typically added to the Standard Dictionary when a private tag needs to be created and used for tag rule routing and/or Tag Mapper functionality.
- Added an option to the Standard Data Dictionary node to sync the database and associated Dictionary.txt file.

- The new option can be accessed by right clicking the Standard Data Dictionary node in the MMC and selecting the option “Copy Dictionary to File”.
- This option takes a copy of the Standard Data Dictionary node in the AcuoMed MMC (DicomDataDictionary table in AcuoMed Database) and re-creates the Dictionary.txt file at the following location: C:\Program Files\Common Files\Acuo Technologies
- This option is generally needed when tags added to the MMC need to be processed by the Acuo DICOM Tools (for example, DecodeDICOM, DumpAsiffContents, StoreAsiffFile, etc.).

## AcuoXDS Repository - Document Submission via Source Node

- Added the ability to submit XDS documents directly into the Repository from the Acuo XDS Repository Manager / Source node.
- Reference the doc “Acuo XDS Repository MMC Source\_6.0.4” for further details.

## Updates

### AcuoStore & AcuoMed

- Removed the Override Data Dictionary node in the MMC at the following location (this was not supported in previous releases, although it was still visible):
  - Image Manager Server / DICOM Configuration / DICOM Data Dictionary / Override Data Dictionary

## Acuo Release 6.0.3 (February 10, 2017)

Version 6.0.3 is a Service Pack release containing areas of new functionality, improvements to overall system performance and stability, and other various changes. Updates are found below, with further details found in the corresponding Product Guides.

For installation instructions, refer to the *Acuo Installation and Setup Guide 6.0.x*.

## Enhancements

### OS and SQL Support

- Added support for Windows 10 and SQL Server 2014.

- Dropped support for all 32 bit Operating Systems, which includes the following (these were supported in 6.0.2 and are no longer supported in 6.0.3):
  - Windows Server 2008 (all non-R2 versions). For Server 2008, the only remaining supported version in 6.0.3 is the R2 version (R2 is 64 bit only).
  - Windows 7 (32 bit)
- For a full listing of OS/SQL Support, reference the *Acuo Installation and Setup Guide 6.0.x* (section for Acuo Release 6.0.3).

## 64 Bit Support

- 6.0.3 is a “64 bit only” release. It can only be installed on 64 bit systems.
- In version 6.0.3:
  - Files are installed in the following directory: C:\Program Files\Acuo Technologies
    - Example: The Pruner for Retention/Purge Policies now runs out of the 64 bit directory (C:\Program Files\Acuo Technologies\AcuoMed\DicomPrune.exe).
    - Example: Tag Mapper files are now present at: C:\Program Files\Acuo Technologies\TagMapper
  - Registry entries are located at: HKEY\_LOCAL\_MACHINE\SOFTWARE\Acuo Technologies
  - Similarly, tracing entries in the registry are here:  
HKEY\_LOCAL\_MACHINE\SOFTWARE\Microsoft\Tracing
- In version 6.0.2 and previous:
  - Files were installed at: C:\Program Files (x86)\Acuo Technologies
  - Registry entries were located here:  
HKEY\_LOCAL\_MACHINE\SOFTWARE\Wow6432Node\Acuo Technologies
  - Trace entries were located here:  
HKEY\_LOCAL\_MACHINE\SOFTWARE\Wow6432Node\Microsoft\Tracing
- Some additional differences related to 64 bit installs are the following:
  - On 6.0.3, the 4 GB memory limit associated with 32 bit processors is now gone. 6.0.3 can fully utilize higher levels of memory space.
  - New MMC consoles are now generated using Start / Run and typing command “mmc”.
    - In prior versions, the command was “mmc -32” (if this is used on a 6.0.3 install, the Acuo snap-ins will not appear).
  - Trace files now have 8 byte addresses (previously, they were 4 byte addresses).

## AcuoStore – Extensible AcuoStore Databases

- In 6.0.3, multiple (extensible) AcuoStore Databases can be installed.

- A new node titled “Extensible AcuoStore Configuration” is present in the MMC. Inside this node, additional AcuoStore Databases can be installed (along with corresponding Shares and Applications for each DB).
- This added functionality is not intended to impact an existing AcuoStore Database (or any of its Shares or Applications).
  - For example, if an existing system is upgraded to 6.0.3, Shares and/or Applications that are part of the existing AcuoStore Database should not be moved to a newly added (extensible) AcuoStore Database.
- For additional details, reference the AcuoStore Product Guide for 6.0.3 (section on “Extensible AcuoStore Configuration”).

## Storage Commitment

- Storage Commit now defaults to using the DICOM databases associated with the Called AE where the Commit was received.
  - Example: If a Storage Commit is sent to Called AE “AcuoMedSC”, and that Called AE has a default route that points to local DICOM databases “DB2” and “DB4”, these are the databases that will be checked for images (and thus the information used in the Commit response).
- In version 6.0.2 and previous, Storage Commitment was configured at the Image Manager Server Properties / Storage Commitment tab. DICOM Databases to be used for Storage Commit were moved from left or right under a “Storage Commitment Order” column.
  - In 6.0.3, this area of configuration is still present, although it is optional. If used (if 1 or more DBs is moved into the Storage Commitment Order column), it overrides the default behavior noted above where the DBs associated to the Called AE are used.
  - If an existing 6.0.1 or 6.0.2 system has Storage Commit configured (1 or more DBs have been moved to the Storage Commitment Order column), and it is upgraded to 6.0.3, the behavior should effectively be the same as it was in 6.0.2.
- Also found at the configuration for Storage Commitment is the following new option:
  - *Number of Days To Keep Completed Jobs On Queue* (default is 7): This is the number of days completed jobs will remain visible in the Batch Commit Manager.
  - Prior to 6.0.3, this setting was not configurable (completed jobs were automatically removed).
- In 6.0.3, there is a new option to Remove Completed Jobs (right click Batch Commit Manager and select Remove Completed Jobs).
- In 6.0.3, the GUI to Analyze Commit Jobs (right click Batch Commit Manager and select Analyze Commit Jobs) is enhanced with more information and additional features/functionality.
- Added a double click option to the Batch Commit Manager for analyzing jobs (in prior versions, this was not available and jobs could only be analyzed by right clicking a job).
- Eliminated the usage of AcuoStore for Storage Commitment processing.
  - Prior to 6.0.3, info was pulled directly from the file in the DILIB share for Storage Commit responses.

- In 6.0.3, info is accessed directly from an XML column inside the AcuoMed DB (table "T\_BatchCommitX")

## ILM Options – Compress Images & Keep Images in Recycle Bin

- New functionality in 6.0.3 allows for images to be compressed for ILM rules (Retention/Purge Policies). An additional option has also been added that allows deleted images to be kept in the (Acuo) Recycle Bin.
  - In previous versions, ILM policies could only be used for deletion (or pruning). Images deleted through Retention/Purge Policies were permanently deleted (they were not kept in the Recycle Bin).
- Configuration for the new ILM-Compression options is found inside the existing Retention/Purge Policies tab (under the properties of a DICOM Database). On the "Retention/Purge Policies" tab, clicking on "New Policy" will show the following options (ILM Action section):
  - Delete Images (same functionality as in previous versions, although this option was not visible)
  - Delete Images, keep in Recycle Bin (new in 6.0.3)
    - Same as prior versions, except images are now retained in the Recycle Bin (according to settings in the IHE Audit/Recycle Bin Manager).
  - Compress Images (new in 6.0.3)
    - New option to compress images and send them to an ILM (DICOM) Database.
    - This option requires a DICOM DB of Type "ILM". A new DICOM Database with Type "ILM" needs to be set up in order for it to be selectable in the "ILM DB" dropdown list. In addition, a new Route should be created that includes the ILM Database.
    - Batch Store jobs are queued for each image being stored to the ILM Database. Images are stored in the compression format that is set for that DICOM Database (Options tab, Compression section).
    - If this option is configured, the original images in the source location are deleted (only the compressed images going to the ILM Database are retained).

## Tag Rule Routing: Ends-With Criteria Added

- In prior versions, Tag Rule Routing functionality could utilize criteria to check for a tag that "starts-with" or "contains" a certain value. Added in 6.0.3 is the ability to check for a tag that "ends-with" a certain value.
- For additional details, reference the AcuoMed Product Guide for 6.0.3 (section on "Tag Rule Routing").

## Batch Store Permissions – Acuo Users Can No Longer Cancel Jobs

- Users in the “Acuo Users” group can no longer cancel a job in Batch Store (or use the right click option to Force a Cancel). Only users in the “Acuo Power Users” or “Acuo Administrators” group can cancel Batch Store jobs.

## C-Find Response – Added Option to Report Source

- A new option is available in 6.0.3 that will add a tag to a Study level C-Find response with the source of where the data was found. The information in this tag is either the Called AE Name of an External Device (if the Study is found on an External) or the local DICOM Database Name (if found locally).
- This is implemented through the following registry setting:
  - Acuo Technologies\AcuoMed\Server\CfindSourceOfResultDataTag
  - A DICOM Tag (Group, Element) is entered in this setting. For example:
    - 00330033 (Hex)
- If a tag is entered in the above registry setting, the data returned for this tag in a C-Find response will be:
  - The Called AE Name of the External DICOM Device (if the Study is found on the external)
  - OR
  - The DICOM Database Name (if found locally on a DICOM Database).
- Example:
  - A C-Find is received inbound to Acuo System 1 on Called AE “AcuoMed”. The Default Route assigned to this Called AE goes to 2 External Devices and 1 local DICOM DB.
    - The Called AE on External Device 1 is: “ExternalAE1” (contains Study 1)
    - The Called AE on External Device 2 is: “ExternalAE2” (contains Study 2)
    - The local DICOM Database Name is: “LocalDB1” (contains Study 3)
  - If tag 00330033 is entered in the above registry setting:
    - The C-Find Response for Study 1 contains “ExternalAE1” in this tag.
    - The C-Find Response for Study 2 contains “ExternalAE2” in this tag.
    - The C-Find Response for Study 3 contains “LocalDB1” in this tag.

## Tag Mapper – Added Support for VR Type Floating Point Double (FD)

- Added support to TagMapper for VR type Floating Point Double (FD). TagMapper can create tags having VR type 'FD' and tag values can be written to or read from the TagMapper database table.
  - Example: create 7e1f,602c #0# FD

## IHE Audit/Recycle Bin Manager – New Tab for Syslog Tasks

- In the IHE Audit/Recycle Bin Manager, there is a new tab “Syslog Tasks”. This shows the status of audits submitted to a (configured) Syslog Server. In prior versions, this information was not available through the GUI/MMC.

## IPv6 Support (All Products/Installers)

- IPv6 is now supported across all products/installers
  - IPv6 was previously supported for some products in 6.0.2 (XDS, AcuoHA).
- The following are notable areas in the MMC where IPv6 support can take effect:
  - IPv6 addresses can be entered into Host Name fields.
  - Activity Log may display IPv6 addresses.
- IPv6 Address Notation: 8 groups of 4 hexadecimal digits (groups separated by a colon)
  - Example: 123a:0cd8:0000:0000:0000:ff00:0044:8355
  - Each Group is 16 Bits (total of 128 bits for the address).

## AcuoXDS Registry – XDM Export Added

- In the AcuoXDS Registry, added the ability to search for documents and perform an XDM export to media (XDM: Cross-Enterprise Document Media Interchange).
- This functionality is present at the “AcuoXDS Registry Manager” MMC snap-in / Explorer node.

## AcuoXDS ILM

- The Acuo XDS ILM Manager executes user-defined policies that schedule matching XDS documents for deletion from an Acuo XDS Repository and any XDS Registry that supports the IHE XDS Metadata Update delete transaction.
- AcuoXDS ILM has a separate (new) installer for 6.0.3. For additional details, reference the “Acuo XDS ILM Product Guide – 6.0.3” guide.

## AcuoMed eMPI (PIX Manager) – Bulk Patient Importer

- The Bulk Patient Importer allows a large number of patients to be loaded into the eMPI Database via an import file. For additional details, reference the “Acuo eMPI\_PIX Manager\_Product Guide\_6.0.3”.

## AcuoMed eMPI (PIX Manager) – Web Admin GUI

- The AcuoMed eMPI (PIX Manager) Web Admin GUI is an added feature to the existing AcuoMed eMPI PIX Manager, although it is a separate installer (the Admin GUI requires an existing install of the AcuoMed eMPI PIX Manager).
- The Web Admin GUI contains the following added functionality:
  - Add Patient record
  - Edit Patient record
  - Search records
  - Merge patient records
  - Pin multiple patient records
  - Edit linked patient details

## Updates

### AcuoStore & AcuoMed

- All updates listed in the 6.0.2 Hotfix 4 section (and earlier) are included in 6.0.3.
- On new installs of an AcuoStore, AcuoMed, or DICOM Database, the option to use SQL authentication for the **Database Connection Type** has been removed (all new Database installs need to use Windows authentication).
  - In versions 6.0.2 and prior, this option was visible on the upper right hand side of the database install screen.
  - Note: This is different than the **SQL Server Connection Type** (the Windows account or SQL account with permissions to install the database). This area of the install screen is unchanged in 6.0.3.
- On the install of a new DICOM Database Destination, there is a new option for “ILM” on the DICOM Database Settings tab / Database Type section. This is related to the new Retention/Purge Policy option for compressing images. Reference the new ILM options above (Enhancements section) for further details.
- Acuo-Acuo Encryption functionality has been removed in 6.0.3. This was effectively replaced by TLS Encryption in prior versions. In 6.0.3, the text “This feature is no longer supported (as of 6.0.3) and has been replaced by TLS” will be seen in the following areas:
  - Image Manager Server node / Options tab / section for Encryption.
  - Called AE Properties / Options tab / Encryption Options section.
  - External DICOM Device Properties / Options tab / Outbound Encryption section.

- The “CRC Validation” option has been removed from the Image Manager Server / Properties / Storage Server DILIB Connection tab. This was an older option related to Duplicates processing that is no longer supported (it was also not supported in prior versions 6.0.1 and 6.0.2).
- Resolved issue where fixit jobs were not always logged consistently in the Batch Patient Update Manager (they were in the Batch Store Manager) under certain configurations.
- On new installs, the default for the registry setting “GetFindCounts” has been changed from NO to YES.
  - Setting Location: HKEY\_LOCAL\_MACHINE\SOFTWARE\Acuo Technologies\AcuoMed\Server\**GetFindCounts**
  - This setting is commonly changed in the field. When set to YES, all applicable instance count tags in a C-Find Request are returned (when set to NO, these were not all returned). Examples of tags returned when set to YES:
    - (0020, 1200): Number of Patient Related Studies
    - (0020, 1202): Number of Patient Related Series
    - (0020, 1204): Number of Patient Related Instances
    - (0020, 1206): Number of Study Related Series
    - (0020, 1208): Number of Study Related Instances
    - (0028, 0010): Rows
    - (0028, 0011): Columns
    - (0028, 0100): Bits Allocated
- When installing a new DICOM Database Destination, the Application Name field (Storage Server Connection tab) is now a dropdown selection list (in prior versions it was an open text field). This list contains only Applications installed under the same SQL Server Instance as the DICOM Database.
- Resolved issue where Move Discovery Options were being incorrectly taken from the Target Route (when Filter Move By Target was also enabled).
- Resolved issue where a non-IOCM KO failed to store at a specific site.
- Resolved memory leak related to XDS-I submissions.
- Resolved planar issue on inbound compression. This may result in images displaying in a 3x3 grid pattern on a viewstation when transmitted outbound. Additional details on this issue:
  - This issue does not apply to new installs of 6.0.3 (if data is newly stored on 6.0.3.515). This was an update from a 6.0.2 Hotfix 4 patch that is also available in 6.0.3.
  - If the issue occurs while transmitting data, an event will be output with steps on entering data in the following registry setting: EnablePlanarPixelReprocessingSeriesUIDs
  - Excerpt from the event:
    - *Message = Asset may contain Pixel Data that is in a Planar Format. If Display appears in a 3X3 format*
    - *Consider adding Series UID Root to Registry*
    - *EnablePlanarPixelReprocessingSeriesUIDs*
    - *Series UID: 1.3.46.670589.33.1.123456789*
    - *FileName...*
- Resolved issue where error events were output in the Acuo Event Log when canceling all Paused jobs and all On Hold jobs in Batch Store. Excerpt of events seen when this occurs:
  - *Event 262, AcuoStore (Warning): AcuoStore API Error: DCOM Catch. Error: 0x8004f068 (LinkFile: the authenticated application dilib does not own the file.) in function: m\_adaUnlinkFile.*

- *Event 8273, AcuoMed (Error): AcuoStore API Error Return: Error(Batch Stored Job Number = 1043, File Guid = {955...}, Folder Guid = {443...}, AcuoStore Message = Attempt to use unauthorized service.) in Function(StoreBatchServer.cpp).*
- Resolved issues related to Shared Configuration and Prefetch Station AE Titles.
- Resolved issue where the Modalities in Study tag is not updated if a Series is deleted.
- Improved tracing in various areas.

## Tag Mapper

- Added clarification to the TagMapper Product Guide on creating private tags with the appropriate Private Creator Data Element tag.
- Updated the TagMapper Product Guide to incorporate changes for enabling TagMapper on a Called AE or External DICOM Device. *When TagMapper is enabled and a new TagMapper Instance name is specified, the associated TagMapper directory and database table are created automatically.*
  - In older versions, users could manually create the TagMapper <instance> directory first and then Browse to select it when enabling TagMapper. This action would then result in creation of the database table. As of 6.0.2 HF4, this option (manually creating the <instance> directory) is no longer supported.

## AcuoMed eMPI (PIX Manager)

- Updated to support SQL Replication (changed database primary keys from int to uniqueidentifier).

## Acuo Release 6.0.2 Hotfix 4 (October 10, 2016)

Version 6.0.2 Hotfix 4 is a cumulative release that contains updates and enhancements to the following products.

- AcuoStore Digital Asset Manager™
- AcuoMed Image Manager™
- AcuoSemantix™

- AcuoHA™
- AcuoWorkflow Services™
- AcuoWADO™
- AcuoXDS Registry, AcuoXDS Repository, AcuoXDS Accelerator™ (full installers)
- AcuoStore Web Services™ (full installer)

For installation instructions, refer to the *Acuo Installation and Setup Guide 6.0.x*.

## Enhancements

### AcuoStore, Archive Device, and Tier Manager

- Archive device Scality renamed to S3
  - Under the Archive Device configuration, the Archive Device Type “Scality” has been renamed to “S3”. This is to better reflect the broad scope of the S3 API object storage.
- Removed CacheMgrParallelAppCount Internal Limit of 20
  - Prior to this update, the CacheMgrParallelAppCount would not run higher than 20 even if configured.

### AcuoMed

- Added an option to filter IOCM KO objects from query/retrieves.
  - On the configuration of a Route, Route Definition tab, a new (checkbox) option is available: “Omit IOCMs from CFINDS and CMOVES”.
  - New in this release is an added column in the T\_Image table (DICOM DB) to store the code value for Key Object Selection objects (SOP Class UID: 1.2.840.10008.5.1.4.1.1.88.59). This is used to distinguish between IOCM KO objects and non-IOCM KO objects. The following reason codes are considered IOCM KO codes, and therefore IOCM KOs will be excluded from C-Finds/C-Moves if the above option is enabled (for any other codes not listed below, the option will not apply):
    - 113001 (Rejected for Quality Reasons)
    - 113037 (Rejected for Patient Safety Reasons)
    - 113038 (Incorrect Modality Worklist Entry)
    - 113039 (Data Retention Policy Expired)
  - Note: The KO code value comes from the Concept Name Code Sequence (0040, a043) tag.
  - See next item for a newly added tool that can be used to populate the code values for data stored prior to HF4.
- Added New Tool to Populate IOCM KO Codes (PopulateKosCodeValue.exe)
  - The newly added functionality to filter out IOCM KO images from query/retrieve requests relies on the KO code value being stored in the database. Since the DB column housing the code value is new in this release, a new tool was created to populate the code value for images already stored into the system (prior to HF4).

- New Tool Name: PopulateKosCodeValue.exe
  - Location: C:\Program Files (x86)\Acuo Technologies\Tools
  - Usage: This tool runs from the command line.
- Additional Notes:
  - In an AcuoHA environment, the tool only needs to run on the Publisher side (changes will be replicated to the Subscriber).
- If running version 6.0.2 HF4, install the latest patch (a newer version of this tool has been released after HF4).
- Added option to keep IOCM KOs (applicable for migrated data).
- The following registry option is available for this functionality (see value 1 below):
 

***AcuoMed \ Server \ locmRetentionPolicy***

  - 0 = Default behavior.
  - 1 = Keep all IOCM KOs.
  - 2 = Do not keep any IOCM KOs.
- Added all DICOM Standard SOPs to the MMC
  - All DICOM Standard SOPs (not currently present) have been added to the Miscellaneous category for Called AE Names and External DICOM Devices. The default supported Transfer Syntaxes are:
    - Implicit VR Little Endian (1)
    - Explicit VR Little Endian (2)
  - As usual, if additional Transfer Syntaxes are requested for any standard SOP, data samples should be acquired to facilitate further internal testing and transcoding verification (compression, decompression, etc.).
- Added the Siemens Private CSA Non-Image Storage SOP (UID: 1.3.12.2.1107.5.9.1) to the MMC
  - SOP was added to the Miscellaneous category (Called AE Name, External DICOM Device) with Implicit VR Little Endian and Explicit VR Little Endian Transfer Syntaxes.
- Additional Transfer Syntax Support
  - SOP Class: Ultrasound Multi-Frame Image Storage – Retired (1.2.840.10008.5.1.4.1.1.3)
    - Added Transfer Syntax Support: Lossy 8 Bit (1.2.840.10008.1.2.4.50)
  - SOP Class: Enhanced CT Image Storage (1.2.840.10008.5.1.4.1.1.2.1)
    - Added Transfer Syntax Support: Lossless (1.2.840.10008.1.2.4.70) and JPEG 2000 Lossless (1.2.840.10008.1.2.4.90)
  - SOP Class: Multi-frame True Color Secondary Capture Image Storage (1.2.840.10008.5.1.4.1.1.7.4)
    - Added Transfer Syntax Support: Lossy 8 Bit (1.2.840.10008.1.2.4.50)
- Auto Change Dest Routes: Jobs Run Automatically if Destination is a Local DICOM Database

- For Batch Store jobs routed via the Auto Change Dest Route functionality, jobs now run automatically if the destination is a local DICOM Database. Prior to this change, all jobs from the Auto Change Dest Route functionality were placed into a status of “On Hold”.
- This change is only effective if the (single) destination on the Auto Change Dest Route is a local DICOM Database. Functionality remains the same if the destination is an External DICOM Device (the Auto Change Dest Route only allows for 1 destination; either one local DICOM Database or one External DICOM Device).
- Added Current Patient Location to C-Find Support
  - The Current Patient Location is now returned on C-Find responses (Study level queries only).
    - Current Patient Location has been added to the T\_Study table (DICOM DB).
    - The associated (new) field in Patient Management, View Study Metadata, is “Patient Study Location”.
- Added Issuer of PID to C-Find Support
  - The Issuer of PID tag (0010, 0021) is now returned on C-Find responses.
- Added Option to Aggregate Modalities in Study Tag for Query Responses
  - A new registry option has been added that allows the Modalities in Study tag (0008, 0061) to be aggregated for query results when study data is distributed amongst multiple databases. Set the following registry option to merge the values reported by all dests which have results for the Study query (only applies to Study level queries):
    - ***RouterBitmappedOptions = 0x00000200***
- Added Ability to Remove Batch Store Jobs for Deleted Destinations
  - If jobs are present in Batch Store and a Destination (associated with those jobs) has been removed, jobs can now removed via the MMC. Prior to this change, jobs stuck under these conditions could only be cleaned up through database interaction.
- Prevent Paused Destinations From Being Removed From MMC
  - A Destination in the MMC will (now) not be removed if it is in a Paused state.
  - Prior to this update, if a Destination was Paused and all jobs are subsequently cancelled and removed, the destination goes away if the MMC is refreshed. If new jobs arrived, they automatically went back into a Paused state. Preventing the Destination from being removed will improve the visibility of its state and avoid confusion in this scenario.
- Propagation Routes – Added Selective Filters
  - At the configuration of a Propagation Route, Route Definition tab, a new section “Propagation Forwarding Filter” is present. This allows Deletes, Merges and/or Updates to be enabled or disabled for the Propagation Route.
  - If a Delete, Merge or Update is performed and that option is enabled on the Propagation Forwarding Filter section, the normal propagation confirmation pop-up window will appear (same as in prior releases): “WARNING: This will generate DICOM messages to propagate your changes to the configured Propagation Route. Are you sure you want to EDIT the selected image(s)?”
    - In 6.0.2 HF4, if the function being performed is not selected as a filter option, the above pop-up confirmation window will not appear.

- For example, if a Delete is performed and Delete is not selected as a filter, the propagation confirmation pop-up window will not appear.
- Fixit Delete Processing – Will Not Delete if Images Arrive After Fixit
  - Fixit deletes will no longer delete images if they arrive after the fixit. The following 2 date/times are compared:
    - The original creation date of the fixit (UTC Created Date from the Batch Patient Update Manager) .
    - The Acuo insertion time of the stored images (IM\_ACUOINSERTDAYTIME column in the T\_Image table). This is the UTC Date/Time the image first arrives at an Acuo system (it remains the same if images are transferred between 2 Acuo systems).
      - If the stored images arrive after the fixit generation time, nothing will be deleted.
- Added Option to Manually Submit an FHIR Study Notification
  - The following options are now available when right clicking a Study in Patient Management (see configuration requirements that follow):
    - Submit First Image Study Notification
    - Submit Last Image Study Notification
  - Note: In order for these settings to be visible, the following areas need to be configured:
    - FHIR is configured at the Server Node (Image Manager Server / Properties / Application Node Settings)
    - Notification Triggers are set at the DICOM Database (DICOM Database Properties / DICOM Database Settings tab / section for Notification Triggers)
- Batch Patient Update Manager: Added Ability to Place Individual Job on Hold
  - In the Batch Patient Update Manager, added the ability to place an individual job on Hold from the right hand pane. This is performed with the following steps:
    - Right click a failed or non-completed job in the right hand pane and select “Hold Job” (new option in this release). This sets the job status in the “T\_BatchFixIt” table to 100 (which effectively allows other jobs behind it to run).
    - Once a job is in “Hold” status, it can either be Canceled or Resumed.
- Prefetching Relevant Priors: Added Option to Select Studies Matching Body Part And Modality
  - The default behavior for Relevant Priors functionality is to prefetch X studies that match on Body Part and an additional Y studies that match on Modality (assuming these are the 2 selection criteria).
  - New in this release is a (checkbox) option titled “Only Select Studies which match Bodypart AND Modality”.
    - If this option is enabled, both Body Part AND Modality need to match in order for it to be selected for prefetching.
- Added Route Names to SCP Node (right hand MMC pane)
  - If the SCP node is selected on the left hand MMC pane, a summary of AE Names is found on the right hand pane (along with additional information on Tag Mapper settings for each AE Name). In

this release the Main Route Name, Stat Route Name and Tag Failure Route Name have also been added.

- Various Additions to Pixel Validation
  - Added the ability to set Pixel Validation globally on all AE Names.
    - Enter keyword "ALL" in the PixelValidationAENames registry setting.
  - Added the ability to exclude AE Names from Pixel Validation.
    - Add Called AE Names to the registry setting: PixelValidationAENamesExcluded
  - Added support for pixel validation of SOP classes that must contain pixel data. This allows a specific SOP Class UID to be checked for the presence of pixel data.
    - New registry setting: PixelValidationPixelRequiredSOPs
    - If a SOP Class UID is entered and matches the incoming data, a Pixel Validation failure will be reported if:
      - The Rows tag is not present OR the pixel size is 0.
    - The incoming AE Name and data format must also match the other corresponding Pixel Validation registry settings (PixelValidationAENames, PixelValidationDataTypes) to take effect.
- ADAM – Move/Route Mapping Entry No Longer Required
  - ADAM no longer requires the Move/Route Mapping entry that corresponds to the Move Destination AE Title of ADAM (located in the AcuoMed Batch Move Processor section of the ADAM configuration screen).
  - In previous versions, without the Move/Route Mapping entry, Batch Move jobs would fail with the error: "Job stopped because the AE could not be found".
  - Effective in 6.0.2 HF4, without the Move/Route Mapping entry, Batch Move jobs are now completed successfully.
- The GUI to Analyze Commit Jobs (right click Batch Commit Manager and select Analyze Commit Jobs) is enhanced with more information and additional features/functionality.

## Tracing and Log Files

- Added Ability to Capture Traces from MMC
  - A new right-click option "Capture Traces" has been added to the MMC Trace Settings node. Selecting this option will save a copy of traces to the following folder: **C:\Program Files (x86)\Acuo Technologies\Captured Traces**
    - A subfolder is created inside the above directory with the following format: Traces\_ServerName\_Date\_Time
    - Example: Traces\_ServerName\_10-30-2016\_17-15-35
- Added MMC Control of Audit Logs
  - The following logs have been added to the MMC / Trace settings node (for easier manipulation of settings and viewing):
    - Acuo\_DICOMDB\_Audit

- Acuo\_Duplicate\_Deletion\_Audit
- Acuo\_NameFormatting\_Audit
- Acuo\_Normalization\_Audit
- Acuo\_Reconciliation\_Audit
- Acuo\_Route\_Rule\_Audit
- Acuo\_TagMapper\_Audit (this is the global Tag Mapper log only)
- Note: The Audit Logs above cannot be turned off (a pop up message is received in the MMC if this is attempted).

## Acuo Tag Mapper

- Added Tag Alias Command (TAGALIAS)
  - A new Tag Mapper command "TAGALIAS" has been added to simplify the reading and analysis of Tag Mapper command files.
  - New Command: **TAGALIAS gggg,eeee AssignedAlias**
    - AssignedAlias name requirements:
      - Alias names are case sensitive.
      - Limited to 50 characters
      - Must uniquely identify a single tag (cannot be reassigned from one tag to another).
      - Must be declared before it is used.
  - Example:
 

```
create 7e1f,0010 ""
create 7e1f,0110 ""
tagAlias 0010,0010 @msgMRN
tagAlias 7e1f,0010 @oldMRN
tagAlias 7e1f,0110 @newMRN
replace @oldMRN @msgMRN

if @oldMRN = (BAD_MRN)
then
replace @newMRN (GOOD_MRN)
endif

if @newMRN != <NULL>
then
replace @msgMRN @newMRN
endif
```
- There is also 1 pre-defined Tag Alias name as follows:
  - Tag (fffe, e000) – Begin Item Tag
    - Pre-Defined Alias: *BeginItem*
- Added Support for Tag Mapper to use a SQL Synonym (instead of a SQL Table or View)
  - The Synonym must be manually created in the AcuoMed database and be granted the same permissions as the auto-generated TagMapper table.

- The Synonym must contain the same number of columns and be named the same as the auto-generated TagMapper table: Tagmapper\_<instance>. The auto-generated TagMapper table must be renamed and will not be used.

## AcuoSemantix

- Added Study Level Fixit Support for Body Part.
  - When an updated order message is received with Body Part, a Study level fixit will be created (if configured in AcuoSemantix) and will update the Body Part on *every series* in the study. As a result, every series in the study will be updated with the same Body Part.
  - Because there is currently no column defined for Body Part in the T\_HISRISSEVENTINFO\_RIS table and UseHisRisAsFilter checks against values in that table, UseHisRisAsFilter should always be set to NO. Otherwise, updates to Body Part would be skipped if Body Part is the only tag value being changed (and not something else like Study Desc).

## AcuoXDS

- AcuoXDS Registry: Added support for XAD PID Link Management functionality
  - The XDS Registry implements the XAD-PID Change Management (XPID) profile that defines a transaction for communicating a change to the XDS Affinity Domain Patient ID (XAD-PID) linked to a local Patient ID.
- AcuoXDS Accelerator (Acuo XDS Manager): Added Previous Error to the Task List
  - In the AcuoXDS Accelerator Task Lists, a new column for “Previous Error” has been added. Prior to this update, only the “Last Error” was present.
- AcuoXDS Accelerator (Acuo XDS Manager): Added Task Count
  - In the AcuoXDS Accelerator Repository Task List (for an individual Repository subnode), added display for “Task Count” at the top of the right hand pane.
  - The Task Count is listed in the MMC Description bar, and therefore may need to be enabled in the MMC settings as follows:
    - View Menu / Customize / Select Checkbox for “Description bar”.
- AcuoXDS Registry: Added Patient Account Number (PID-18) to MDM Notifications
  - Added Patient Account Number (PID-18) to XDS Registry HL7 MDM Notifications.
- Improved logging on XDS Submissions
- Improved error reporting in AcuoXDS Accelerator

## Miscellaneous and Tools

- Added Tag Descriptions to DumpAsiffContents
  - If DumpAsiffContents is run from the command line, Tag Descriptions are now present.
    - This option does not apply to the “View DICOM Dump” (image level) option from Patient Management, or if the -d option is used. It also does not apply for patch area tags.
  - Example of output before change:
    - Tag: 0x00100010 VR: PN VM: 1 Length: 27 Contents: LastName^First^^

- Tag: 0x00100020 VR: LO VM: 1 Length: 6 Contents: 123456
- Example of output after change:
  - Tag: 0x00100010 (Patient's Name)  
VR: PN VM: 1 Length: 17 Contents: LastName^First^^
  - Tag: 0x00100020 (Patient ID)  
VR: LO VM: 1 Length: 6 Contents: 123456

## Updates

### AcuoStore, Archive Device, and Tier Manager

- Resolved issue where the orphan cleaner did not unlink items properly under some scenarios when the CAS is offline.
- Updated authentication for writing to Hitachi HCP per changes in newer versions.

### AcuoMed

- Updated Duplicates processing to not treat images as duplicates when tag (0008, 0008) does not start with "DERIVED". This is applicable to Duplicates processing only, where the Referenced SOP Instance UID (in the Source Image Sequence tag) is the same.
  - Note: Images where tag (0008, 0008) starts with "DERIVED" are treated as duplicates (same as in prior releases). The following registry setting is available to not treat these images as duplicates:
    - ***RouterBitmappedOptions = 0x00000080***
- Resolved issue related to manipulation of jobs placed into Hold status as a result of the CstoreHoldErrorCodes (registry setting) functionality.
- Resolved COM Marshaling errors and associated events.
- Resolved issue related to transmission of large files (2+ GB).
- Resolved various issues related to image ingestion and/or transmission (usually occurring on unique datasets and reported from a single site).
- Resolved miscellaneous issues that could result in AcuoMed Service interruptions.
- Resolved issue where excessive SQL connections were left open. Resolved issue where DICOM Database connections were not being closed under some conditions.
- Resolved memory leaks related to processing Storage Commitment requests and C-Finds/C-Moves.
- Resolved issue where Study Level Accession Number updates fail when multiple Studies have the same accession number.
  - The following registry setting needs to be enabled for fixit message to process successfully in this scenario: ***RouterBitmappedOptions = 0x00000040***
  - Notable Symptom: When an issue has occurred in the field related to this (fixit job fails), the following text has been seen in the Last Run status of the Batch Patient Update job: *Exception in RouterStoreDestLocal.cpp, 737. The Accession Number "1000" matches multiple Study UIDs in this database. The update cannot be processed. Use Patient Management to resolve the duplicate Accession Number issue.*

- Changed behavior to no longer prevent inbound C-Stores when the Feature Key Study Count is exceeded.
- Resolved issue where the Capitalization setting for Normalization was still taking effect when Inbound Normalization was disabled (it should be ignored and not do anything when Inbound Normalization is disabled).
- Added a pop-up error and associated events when the “Delete Single Study” action is performed in Patient Management and the associated AcuoStore file cannot be found.
- Updated Route View Management to no longer allow Propagation Routes to be added.
- Increased the width of the Database selection windows at the Storage Commitment configuration screen (Image Manager Server Properties / Storage Commitment tab).
- Resolved Storage Commit issue when the client reuses the same transaction UID.
- Resolved issue where the database ordering buttons (Move up, Move down) in the Storage Commitment configuration screen did not work when 10 or more databases were present.
- Resolved issue where images were not viewable in Patient Management when RESTful WADO was used for viewing. Issue was related to test images where many tags had a blank value.
- Resolved issue where orphan entries were left in the database after an Image-to-Series Merge.
- Resolved issue where not all images were deleted when processing an IOCM KOS.
- When a FHIR connection is enabled:
  - Resolved issue with (missing) Study Notifications when images for the same Study arrived on different associations.
  - Resolved issue where jobs in the Batch Study Notification Manager became stuck for a Last Image Notification under some conditions.
  - Resolved issue related to handling of Transfer Task ID and reprocessing images from the REM when images are received over separate associations.
  - Resolved other various issues related to FHIR-enabled reconciliation functionality.
- Update to prevent multiple queries to an MPI server after an AcuoMed service restart.
- When Patient Identity Management is enabled, resolved issue where outbound queries to an Acuo device (incorrectly) include the Issuer of PID tag in query results when it was not requested.
- Resolved issue related to handling of a Series Level C-Move request with 50+ Series UID values populated in the Series UID tag.
- Reduced execution time of stored proc “BATCHSTORE\_UPDATE\_QUEUED” (may result in improved performance when Batch Store queues are large).
- Resolved issue where custom settings for column ordering were not saved in Patient Management or Route View.
- Removed Issuer of Accession Number drop-down from various locations in the MMC (not yet fully supported).
- Resolved issue where some recoverable database errors resulted in the Batch Store queue halting.
- Resolved issue where Lossless data was (incorrectly) transmitted Lossy under certain scenarios when the Series contained mixed data formats.

- Resolved issue where the Patient Name inside a sequence was incorrectly used for insertion into the DICOM Database for specific datasets.
- Resolved issue related to remote Reconciliation when Patient Management clients were using older hotfix versions.
- Resolved issues resulting in CPU pinning from certain datasets.
- Removed redundant queries to the PIX Manager server when Patient Identity Management is configured.

## Acuo Tag Mapper

- Resolved issue where Tag Mapper failed to detect a coding error on the CREATE command when single quotes (') were used instead of double quotes ("). The command file now (correctly) fails to parse.
- Resolved Tag Mapper issue extracting sequence data from an SR.
- Resolved various cases involving parsing errors with the SEQ\_CloseItem.
- Resolved case where the Tag Mapper Message Log displayed the incorrect DBTable Name.
- Resolved various issues related to processing of nested sequences.
- Resolved issue where Tag Mapper failed to parse commands when ReadFile was used.
- Resolved issue related to SEQ\_OPEN failing on outbound Tag Mapper.
- Resolved issue related to adding tags to an existing sequence.
- Fixed memory leaks related to Tag Mapper.
- Resolved issue where Tag Mapper tried to update a database column with too large a value (resulting in an AcuoMed Service interruption).
- Resolved issue related to location of substring data in the database using the "contains" operator.

## AcuoSemantix

- Resolved issue where Prefetching would not queue Batch Move jobs to a Farm Member server in a Shared Configuration environment. Also resolved a related issue where the Prefetch rule drop-down menus for "Source Route Name" and "Move Destination AE Title" were not populating correctly in a Shared Configuration environment.
  - The issue occurred when a Farm Member was selected as the Database Instance in the configuration of a Prefetch rule (and an HL7 message is processed with the SendBatchMove activity). The Batch Move would not be inserted, and the following events were seen in the Acuo Event Log (excerpts from events; both **Event 25872, AcuoSemantix**):
    - *Condition: Unable to locate the route name "D" from station mappings for Batch Move - The most likely cause is AcuoMed is not configured properly on the target system.*
    - *Condition: Unable to add a batch move. The most likely error is the HIS/RIS on the AcuoMed system is not configured for MedSematix-es or the AcuoMed Server is not responding.*
- Resolved prefetch issue involving only Accession Number when an External Device is used as the Source.

## AcuoWorkflow (Acuo Patient Management REST Service)

- Resolved issue where the Acuo Patient Management REST Service was not set to a Startup Type of Automatic after an upgrade.
- Resolved issue related to Patient Management REST Deletes where a “Memory is locked” error would intermittently occur (images were still deleted successfully).
- Improved error reporting for Patient Management REST Deletes.

## AcuoXDS

- Resolved issue where the Repository Application Name list was not being reloaded when changes or additions were made to Applications.
- Resolved issue where the XDS Repository and Registry logs were not always truncated.
- Resolved various issues related to XDS-I submissions.
- Resolved miscellaneous GUI issue in AcuoXDS Repository related to selection/de-selection of Anatomic Region.
- Resolved various GUI issues in the Acuo Repository Manager.
- Resolved XDS Accelerator issues related to submissions with ServiceStartTime and ServiceStopTime.
- Resolved issue that can result in orphaned XDS Application (AcuoStore) files when a Repository DB exception occurs.
- XDS-I now uses the Procedure Code Sequence (0008,1032) for the XDS-I typecode metadata.
  - If the preference is to use the (old) Performed Procedure Sequence, the following registry setting can be changed from 1 (default) to 0:
  - ***Wow6432Node\Acuo Technologies\AcuoMed\ServerXDSI\_UseProcedureCodeSequence***

## Miscellaneous and Tools

- Removed various events that were not useful or were no longer needed.
- StoreAsiffFile: Updated to skip images that fail due to bad pixel data.
- Miscellaneous Logging and Tracing Improvements.

## Acuo Release 6.0.2 Hotfix 3 (February 10, 2016)

Version 6.0.2 Hotfix 3 is a cumulative release that contains updates and enhancements to the following products.

- AcuoStore Digital Asset Manager™
- AcuoMed Image Manager™
- AcuoSemantix™
- AcuoHA™

- AcuoWorkflow Services™
- AcuoWADO™
- AcuoXDS Registry, AcuoXDS Repository, AcuoXDS Accelerator™ (full installers)
- AcuoStore Web Services™ (full installer)

For installation instructions, refer to the *Acuo Installation and Setup Guide 6.0.x*.

## Enhancements

### OS and SQL Support

- Added support for SQL Server 2012 **SP3**. For a full listing of OS/SQL Support, reference the *Acuo Installation and Setup Guide 6.0.x* (section for Acuo Release 6.0.2).

### AcuoStore, Archive Device, and Tier Manager

- Added support for higher numbers of writer threads, cache cleaner threads, and max allowed addresses. Details are as follows:
  - Number of Writer Threads: Found at the properties of an Archive Device, Writer/Cache Control Parameters, **Max Threads** field. The maximum number of acting threads can now be greater than 30 (this was previously limited regardless of the value in the configuration).
  - Number of Cache Cleaner (Deletion) Threads: This is set in the registry under the setting: ...\\Wow6432Node\\Acuo Technologies\\AcuoStore\\Server\\**CacheMgrParallelDeleteCount**. The maximum number of acting threads can now be greater than 30 (this was previously limited regardless of the value in the configuration).
  - Number of Allowed Round Robin Addresses: Found at the properties of an Archive Device, Advanced Options, **Max Addresses** field. The number of configurable addresses is no longer limited to 100.

### AcuoMed

- Additional options have been added to the configuration of an External DICOM Device when Patient Identity Management is enabled (multi-domain environment). The following options are now present on the External DICOM Device / Domain tab (only 1 can be selected):
  - **Enforce Patient Identity Mapping**: Images will only be sent if a PID exists in the domain assigned to the External DICOM Device.
  - **Use current PID value when no mapping is provided**: Images will be sent using the PID for the domain assigned to the External DICOM Device if known, otherwise the PID used will be from the image source domain.
  - **No Patient Identity Mapping (always use current PID value)**: Images will be sent using the PID of the image source domain.
- Added support for Global to Local and Local to Global Patient ID mapping when HIS/RIS table is used for the MPI Type for Patient Identity Management.
  - Added the ability to define a domain using \* as the IPID in its definition (no default IPID). This allows a Called AE Name to be used for query/retrieves from multiple domains and/or provide query results in the context of the domain from which the result was found.

- Added an option to provide consistency in C-Find results when the same study is found in multiple databases, and there is inconsistent metadata in each database. Prior to this change, the first query returned would control the metadata returned in the C-Find response (and since the speed of each DB instance query can vary, inconsistent results may be reported). The new option added is as follows:
  - Location of Option: Route Configuration / Route Definition tab / Find Options / Checkbox for **"Report Results in Order of Dest Priority"**.
  - Description: If checked, results will be reported according to the priority order of dests on the route (when a route is selected, the Move Order priority on the right hand side of the screen).
- Added an option in the GUI/MMC to utilize AcuoAccess for viewing images inside Patient Management via WADO. At the AcuoMed Image Manager snap-in, Image Manager Server Properties, Patient Management tab, the following options are now present:
  - **Server Name and Port:** These are the same fields that were present in prior releases.
  - **Legacy Wado:** This option is newly visible in this release, although it functions the same as prior releases for WADO viewing. It utilizes the install and configuration from an "AcuoWADO" install.
    - Default Port for Legacy Wado: 9000
  - **Restful Wado:** This option is new in this release. It utilizes an install and configuration of "AcuoAccess" for WADO viewing.
    - Default Port for Restful Wado: 8081
  - **Other (with free form input):** Also new in this release, allows for editing the HTTP prefix.
- Modified default behavior to now reject inbound C-Stores when the Patient ID tag (0010, 0020) is missing or not populated. Prior to this change, a PID would be auto-generated and the C-Store was accepted.
- Improved outbound store performance (results may vary depending on site configuration, workflow, other variables).
- Added more information to events related to SQL database errors.
- Improved error checking on the AcuoStore validation screen of the Shared Configuration wizard.
- Added more information to logs and traces for DICOM commands that indicate an error status.
- Added better tracing for IOCM processing for cases when images are not deleted.
- Added Lossless and J2K Lossless support for the following SOP:
  - SOP Name: Digital Mammography Image Storage - For Processing
  - SOP UID: 1.2.840.10008.5.1.4.1.1.1.2.1
- Improved event text when attempting to transmit RLE Lossless data, and RLE Lossless (SOP UID: 1.2.840.10008.1.2.5) is not accepted by the external device.

## Acuo Tag Mapper

- Added the ability to disable the Tag Mapper audit logs.
  - New Tag Mapper command: **SET AUDITLOGGING [TRUE/FALSE]**

- Example: **SET AUDITLOGGING FALSE**
  - The new command controls the Tag Mapper audit logs located at: *C:\Program Files (x86)\Acuo Technologies\AcuoMed\AuditLogs*
    - If not specified, the default is TRUE (enabled).
- Added a command reference summary to the “TagMapper\_Commands.txt” file for new instances of Tag Mapper on a Called AE or External Device (this does not apply for Global Tag Mapper instances). This is a reference summary with an alphabetical list of all Tag Mapper commands and other usage examples.

## AcuoSemantix

- Added support to populate Issuer of Master PID in the HisRis table.

## AcuoWorkflow (Acuo Patient Management REST Service)

- Added the ability to control the reprocessing of REM Events via Web Services.

## AcuoXDS

- Added an option that allows the Anatomic Region to not be submitted as part of the event code on XDS-I submissions (it is submitted by default). The new option is located at the Acuo XDS Manager node / XDS Configuration / Affinity Domain / Repository Template / Document tab (XDS-I Options section).
- Added new MPI Type “TrustedSource” to XDS Accelerator (Acuo XDS Manager MMC node). This allows usage of the source domain ID values as the global PID when there is no MPI.

## Miscellaneous

- Increased the default size of some traces to better assist troubleshooting by having a larger default capture window.

## Updates

### AcuoStore, Archive Device, and Tier Manager

- Resolved issue where invalid control characters in the data prevented images from being written offline.
- Resolved issue where some images could not be brought online due to large header lengths.
- Resolved issue where .tmp files are left on the system under certain conditions and when the active share changes.
- Removed a redundant read of a file when writing to archive devices.

## AcuoMed

- Resolved issue tabling Batch Moves on non-farm head members under a Shared Configuration environment.
- Resolved issue where UID Change Dest route types were not properly routing UID conflicts in a Shared Configuration environment.
- Removed artificial limit of 50 databases for Storage Commit processing. Prior to this update, if 51 or more databases were configured for Storage Commit, this resulted in an AcuoMed Service interruption.
- Resolved various issues related to image ingestion and/or transmission (usually occurring on unique datasets and reported from a single site).
- Resolved miscellaneous issues that could result in AcuoMed Service interruptions.
- Resolved memory leak in AcuoMed that may result from certain error conditions or transmission of data containing large sequences.
- Resolved issue where a single image queued to an external device in Group By Study mode is not always retried on its own under some error conditions.
- Resolved issue where some Batch Store jobs went into a Paused status if the External DICOM Device was set to Group By Study mode and the study contained specific combinations of 2 or more SOP classes.
- Resolved issue where “no images moved” was incorrectly reported in some scenarios for image level moves routed to an archive node.
- Resolved issue with RouteView queries (not returning results) when Patient Identity Management is enabled.
- Resolved issues where the Issuer of Patient ID (IPID) tag was not always returned for some C-Find scenarios (when Patient Identity Management is enabled).
- Resolved issue where query results were not always returned with the context of the issuing device's domain when HisRis is selected as the MPI Type (Patient Identity Management enabled).
- Removed memory leak when images are sent outbound to an External DICOM Device set to Group By Study UID mode and Max Associations is set to 1.
- Resolved issue on the UID Conflict Analyzer screen (launched from the All Tasks menu for a job in the Batch Store Manager) where the Patient ID and Patient Name for the Target Database were blank in the case where the incoming PID is the same and the Patient Name is different.
- Resolved issue where the machine name was not saved with the MMC console for an “Acuo IHE Audit/Recycle Bin Manager” standalone snap-in.
- Resolved issues related to Patient Identity Management cache settings (Image Manager Server Properties / Patient Identity Management Settings / Data Cache / Number of Minutes to Keep Mapping Data in Memory).
  - Resolved issue where results were not added to the cache if no patient was found.
  - Resolved issue where an override to the default (10 minutes) did not take effect.

## Acuo Tag Mapper

- Resolved parsing error with Orif command.
- Removed misleading text in event when there is an error registering the Tag Mapper audit log.

- Resolved issue where a sequence in a C-Find response was not properly deleted (from the tag mapper command to delete it).
- Resolved issue where tag mapper commands were being executed on inbound connections from another Acuo system (they should not be executed on Acuo-Acuo communications).
- Resolved AcuoMed service interruption that can occur when 50 or more unique Tag Mapper instances are configured.
- Resolved issue related to the CONFORMS command where some tags did not evaluate as expected.

## AcuoSemantix

- Resolved issue with merges in a multi-domain environment.

## AcuoXDS

- Resolved issues related to HL2v2 Patient Identity Feed operations.
- Resolved issue related to an exception with an XDR publish request that resulted in an orphaned entry in the Registry.
- Increased the default WCF message size in the XDS Accelerator configuration file "AcuoXDSService.exe.config" (to facilitate handling of larger file submissions).
- Resolved issue involving connections not being closed by XDS Accelerator.
- Resolved issue with XDS Registry involving high SQL utilization when running large numbers of GetDocument queries.

## Tools and Miscellaneous Updates

- Removed residual Insertion Date fields from RouteView Management.
- Resolved issue where the Apply button was closing the window when updating a domain in the IPID Domain Configuration screen.
- Resolved MMC crash that occurred when a DICOM DB or External DICOM Device is unassigned (moved back to the left) when adding a new route.

## Acuo Release 6.0.2 Hotfix 2 (August 17, 2015)

Version 6.0.2 Hotfix 2 is a cumulative release that contains updates and enhancements to the following products.

- AcuoStore Digital Asset Manager™
- AcuoMed Image Manager™
- AcuoSemantix™
- AcuoHA™
- AcuoWorkflow Services™
- AcuoWADO™
- AcuoXDS Registry, AcuoXDS Repository, AcuoXDS Accelerator™ (full installers)

- AcuoStore Web Services™ (full installer)

For installation instructions, refer to *Acuo Installation and Setup Guide 6.0.x*.

## Enhancements

### AcuoStore, Archive Device, and Tier Manager

- Added the ability for the Acuo Tier Manager to write to multiple archive devices at the same time.
- Added protections against the Acuo Tier Manager running on multiple systems against the same database.

### AcuoMed

- Modified FHIR Reconciliation to always call the web service on the first store of an association.
- Removed “dilib” as the default Application name for newly created DICOM Databases (found when creating a new DICOM Database Destination, Storage Server Connection tab, Application Name field).

### AcuoMed – Batch Managers

- In the Batch Move Manager, added the ability to cancel all paused jobs.
  - If Paused jobs are present in the Batch Move Manager, a new option to “Cancel All Paused Jobs” is available (from the Batch Move Manager node in the left hand pane of the MMC).
- For jobs in Batch Store going outbound, added the ability to automatically place jobs into “On Hold” status based on a matching DICOM error code. Additional details:
  - A new registry setting “CStoreHoldErrorCodes” has been added for this functionality (registry setting is found at \Acuo Technologies\AcuoMed\Server). If a DICOM error code is returned on an outbound C-Store, and matches one configured in this setting, the job Status is automatically changed to “On Hold”.
  - This setting behaves similar to the existing settings, CStoreRetryErrorCodes and CStorePauseErrorCodes. All three settings can be used alone or in conjunction with the existing CStore110StatusException setting.

### AcuoWorkflow (Acuo Patient Management REST Service)

- Improved error reporting for web service delete requests.

### Acuo Tag Mapper

- Removed unneeded line breaks in the Tag Mapper\_Command\_Log.
- Added command to Tag Mapper to test whether a tag value is conformant to the VR type associated with the tag (based on the DICOM Standard). Additional details:
  - New status value for conditional string comparisons: <CONFORMS>
  - When this status value is used in a conditional statement, the data in the specified DICOM tag is validated against the supported character set for the Value Representation (VR) type

of the tag. The status value <CONFORMS> may be used with either the = (equal) or != (not equal) condition.

- **Example 1:**
  - if 0010,0030 = <CONFORMS>
  - then
    - replace 7e1f,0001 = “PatientBirthDate conforms”
  - else
    - replace 7e1f,0001 = “PatientBirthDate does not conform”
  - endif
  - **Analysis:** If 0010,0030 = <CONFORMS> evaluates true, then the value in tag 0010,0030 PatientBirthDate conforms to the character set for the 'DA' VR type.
- **Example 2:**
  - if 0020,000D != <CONFORMS>
  - then
    - replace 7e1f,0001 = “StudyInstanceUID does not conform”
  - else
    - replace 7e1f,0001 = “StudyInstanceUID conforms”
  - endif
  - **Analysis:** If 0020,000D != <CONFORMS> evaluates true, then the value in tag 0020,000D StudyInstanceUID does not conform to the character set for the 'UI' VR type.
- The character sets supported by each Value Representation type are described in section 3.5 in the DICOM Standard.

## AcuoSemantix

- Added information to traces (message GUID).

## AcuoStore Web Services

- Added a (5 minute) memory cache for AcuoStore Web Services (AcuoStore REST) authentications.

## AcuoXDS

- Improved error messages for MPI call failures.

## Miscellaneous

- Added details to the AcuoMedService trace when XDS-I submissions are received.

## Updates

### AcuoStore, Archive Device, and Tier Manager

- Resolved AcuoStore/Tier Manager memory leak when an archive device is configured.
- Resolved writing issue with the FileStore archive device when metadata contained invalid characters.

### AcuoMed

- Resolved AcuoMed Service interruption that can occur under certain conditions when an inbound C-Move is received that results in outbound C-Stores to multiple destinations (and the images being moved are sporadically being replaced via duplicates processing).
- Resolved various issues related to image ingestion and/or transmission (usually occurring on unique datasets and reported from a single site).
- Resolved issue related to Reconciliation using FHIR, where some jobs would not complete in the Batch Reprocessing Manager when incoming stores had certain tags that were blank.
- Modified behavior to mark FHIR Study Notifications completed with a warning if the study no longer exists.
- Resolved MMC crash when removing devices from a propagation route.
- Resolved issue where fixit messages in the Batch Patient Update Manager went into retry with the error "Issuer of Patient ID Tag missing in outgoing Dicom C-Store Message".
- Added error comments to C-Find responses that are returned with an 0xA700 status.
- Resolved issue where Modality Worklist would not always queue prefetch jobs (if default search order tags were not populated).
- Resolved issue where a specific image (from a single site) did not complete successfully when stored to a DICOM Database set to Lossless compression.
- Modified behavior to allow the Processing ID value to be configurable when forming a PIX query.
- Resolved issue where users in the "Acuo Users" group could delete images from the Recycle Bin (users in this group should not be able to perform deletes).
- Resolved AcuoMed handle leak.

- Resolved issue where prefetching failed with Patient Identity Management enabled for images stored with no IPID (before Patient Identity Management was enabled).
- Resolved issue related to processing of C-Find requests containing specific sequence tags.
- Resolved image transmission issue when the “Strip Private Tags” option is enabled on the External DICOM Device.

## AcuoMed - Batch Managers

- Batch Store – resolved issue where the Change Destination option did not properly change the dest when an External Device was selected as the new dest (the issue did not occur when changing to other local databases).
- Batch Store – resolved issue where completed jobs could not be removed under certain conditions.
- Modified message in Batch Store when sending images from a source domain outbound to an external device in a different domain (when the MPI does not find the PID for the target domain). Prior to the change, the message indicated the PID conversion failed. Now, it simply indicates that no PID exists for the target domain.

## AcuoHA

- Increased allowed limit for Group Monitor Threads inside the Publisher configuration (changed limit from 20 to 200).
- Resolved issue where Subscriber tasks occasionally took longer than expected to complete when the completed queue becomes large.

## AcuoXDS

- Resolved display issues in the Acuo XDS Manager / Task Manager / Task Lists By Repository node (some values were displayed in the wrong columns).
- Resolved XDS Registry error related to submission of classifications containing specific slot names.

## Acuo Tag Mapper

- Resolved issue related to ANDIF logic when false conditions are hit.
- Resolved parsing error on “SEQ\_Close” command.
- Resolved issue related to a warning in the command log for the “Set TMEXTCACHE” command.
- Resolved error when adding a Begin Item following a Seq\_Open command.
- Resolved processing error related to tags within a sequence under certain conditions.
- Resolved issue related to deletion of sequences on outbound C-Stores.
- Resolved issue where Tag Mapper did not continue processing when an error is returned from a custom Tag Mapper Web Services extension.

## AcuoWorkflow (Acuo Patient Management REST Service)

- Resolved issue where some web service image deletes intermittently fail.

- Resolved issue where images are not always deleted for “delete all” requests.

## Tools and Miscellaneous Updates

- Resolved issue in the GUI/MMC (Trace Settings node) where the On/Off status for traces was not displayed correctly when changes were made. Status should now be displayed correctly when setting all traces on/off, or when modifying an individual setting.
- Resolved issue where DumpAsiffContents did not complete successfully on specific file with nested sequences.

## Acuo Release 6.0.2 Hotfix 1 (May 10, 2015)

Version 6.0.2 Hotfix 1 is a cumulative release that contains updates and enhancements to the following products.

- AcuoStore Digital Asset Manager
- AcuoMed Image Manager
- AcuoSemantix
- AcuoHA
- AcuoWorkflow Services
- AcuoStore Web Services (New Base Release)

For installation instructions, refer to *Acuo Installation and Setup Guide 6.0.x*.

## Enhancements

### AcuoMed

- Added IPID to Batch Move pop-up windows (in conjunction with support for Patient Identity Management).
- Modified Relevancy Filtering functionality to be disabled for Study Level Moves generated from AcuoSemantix (relevancy filtering assumes certain tags are present, this functionality is not supported with Study Level Moves)

### Acuo Tag Mapper

- Added support for multi-line comment blocks within TagMapper command file.
  - Starting comment notation: /\*
  - Ending comment notation: \*/
- Added the full command line to the Tag Mapper command log when errors are hit (previously only the line number was present in error messages).
- Added ability for inbound Tag Mapper to build nested sequences.

### Patient Identity Management – MPI HisRis Option

- Functionality has been added that allows data from the HisRis Patient table (T\_HISRISPATIENTINFO\_HRP) to be used for Patient Identity Management.

For more information, refer to *AcuoMed Image Manager Product Guide 6.0.2.x*.

## Preferred Patient ID in Query/Retrieve

In an environment where there are multiple local PIDs per patient across domains, this functionality allows for all responses on a query/retrieve to overwrite (or include) the PID value provided in the original request (C-Find or C-Move).

This is necessary in environments that employ multiple local Patient Identity Domains which are linked through use of a Global Patient ID. The originating device of the Query or Retrieve may not be able to process any local PIDs other than the one it had specified and thus needs all responses to use that same ID.

This functionality is implemented through the use of Tag Mapper.

For more information, refer to *AcuoMed Image Manager Product Guide 6.0.2.x*.

## GUI

- Added the ability to manually enter or modify the AcuoStore Share path (previously, all shares had to be selected from a drop down box listing only shares that have actually been created).
- Changed the default Batch Mode for newly created External DICOM Devices to Group By Study UID (previously, the default was Multiple Stores Per Association). Although there are some devices where this mode may not be the best choice, this option is the best overall combination of interoperability and performance.
- On the properties of a Route, the Reconciliation radio button is now hidden for all non-Reconciliation routes. Previously, the Reconciliation Route type was visible, grayed out and unselectable for all non-Reconciliation routes (only 1 is allowed per system and existing routes cannot be changed to a Reconciliation route).
- Removed “DicomDb1” as the default Database Name when creating a new DICOM Database Destination (DICOM Database Connection tab).

## AcuoSemantix

- Removed the following informational event that is output for every processed HL7 message: “AcuoSemantix is now processing a message”.
- Added the ability to queue a configured number of Batch Moves to multiple destinations. Additional details:
  - Previously, the “esdefault” Prefetch rule was used to queue Batch Moves jobs from AcuoSemantix (using 1 Source Route and 1 Move Destination AE Title). New functionality added in this release allows AcuoSemantix to queue a configured number of Batch Move jobs to multiple destinations (using multiple Prefetch rules).

- Summary of configuration steps:
  - Add parameters **RoundRobin1**, **RoundRobin2**, etc... to the **AcuoSemantixConfig.xml** file. Each RoundRobinX instance is configured with the number of Batch Moves that will be queued to matching Prefetch rule. Example:
    - <RoundRobin1>5</RoundRobin1>
    - <RoundRobin2>8</RoundRobin2>
    - <RoundRobin3>3</RoundRobin3>
  - Set up corresponding Prefetch rules titled RoundRobin1, RoundRobin2, etc...
- Additional notes:
  - A maximum of 9 RoundRobinX parameters are allowed (RoundRobin1 to RoundRobin9).
  - A value of 0 (zero) for a RoundRobinX instance in the AcuoSemantixConfig.xml file indicates that a destination will be skipped (nothing will be queued to the corresponding Prefetch rule). This may be helpful when a destination needs to be temporarily skipped.
  - The RoundRobin functionality cannot be used in conjunction with the “esdefault” rule (if RoundRobin functionality is configured, the “esdefault” Prefetch rule will be ignored and should generally not be present).
- Added a memory based cache to automatically mark duplicate ADT^A08 messages complete if there are no changes to patient demographics. Additional details:
  - If the cache is enabled, AND the Name, PID, Date of Birth and Patient Sex are all identical (to a previously received message), the message is automatically marked completed. If 1 or more of these fields is different, the memory cache will not take effect (and the message is processed normally).
  - If a message is automatically marked completed, the following text will appear in the T\_ARPS\_RIS\_EVENTS table, ARPS\_RE\_RESULT column: “**HL7 Message Processed! – Skipped due to Duplicate Patient Demographics!**”
- Summary of configuration steps:
  - Add new parameter **MemoryCacheRetention** to the **AcuoSemantixConfig.xml** file.
  - Example:
    - <MemoryCacheRetention>120</MemoryCacheRetention>
      - The cache is configured with number of minutes information is to be retained.
      - Default is OFF.
      - If the parameter (MemoryCacheRetention) is not present, or set to 0, this functionality is disabled.
- Remove Patient Name and Patient ID from Study Level move requests.

- Added ability to issue a study level move using Accession Number.
- Modified processing to reduce the number of entries being added to the AcuoMed HisRis Event table (T\_HISRISSEVENTINFO\_RIS) for duplicate messages. General summary of updated behavior:
  - For ADT messages, a HisRis event record is inserted if no associated patient record currently exists.
  - For ORM messages, a HisRis event record is inserted if no patient record currently exists for the matching Accession Number (a new record is inserted if there is no matching Accession Number).

Also refer to the *AcuoSemantix Product Guide 6.0.2*.

## AcuoHA

- Added a new Application Type called “Generic”. This Application is used by AcuoStore Web Services, and must be set to an HA Type of either “None” or “Both” (Publisher and Subscriber).  
**Note** If the Application Type is set to Generic, the User Name and Password are required.
- 2 new AcuoHA commands have also been added in conjunction with the added support of AcuoStore Web Services. Further details of the 2 added commands are as follows:
  - **AddGeneric** = When AcuoStore adds an object to a Generic Application type, and the Tier Manager writes the object to an archive device, an AddGeneric task is inserted into the Publisher database.
  - **DeleteGeneric** = When an object is deleted from a Generic Application type, a DeleteGeneric task is inserted into the Publisher database.

## AcuoWorkflow (Acuo Patient Management REST Service)

- Added functionality to allow Acuo Fixit messages to be propagated on “delete all” web service requests (if a propagation route is configured).

## AcuoStore Web Services

- AcuoStore Web Services is a RESTful Web Service that allows data to be written, read and deleted from the existing AcuoStore product, allowing for expanded utilization from client applications (for example Perceptive Content).
- A separate base installer is available for AcuoStore Web Services.

For more information, refer to the *AcuoStore Web Services Product Guide*.

## Updates

### AcuoStore, Archive Device, and Tier Manager

- Resolved issue where the Cache Manager Information Event ID 1217 (Cache Manager summary event) displayed an incorrect byte size.
- Resolved issue where the following Cache Manager warning event would sometimes be seen in the Acuo Event Log:

- *Cache Manager Error. Type: Candidate Processing Error for application 'images3'.; Message: 1 Files were not deleted. Check the 'AcuoTierManagerSvcLog.txt' log for details.*
- Resolved issue where the following writer errors could sometimes occur (at certain sites) when using EMC Centera as an archive device:
  - *Archive Writer Thread Error. message: Index was out of range. Must be non-negative and less than the size of the collection. Parameter name: index*
  - *Requested ArchiveTypeCentera Address: 10.11.123.44*
  - *Candidate Files: \\path1\Acuo\042315\08\@12345*
- Resolved issue related to an archive writer SQL timeout under certain conditions.

## AcuoMed

- Resolved various issues related to manipulation of items that are part of a Store Destination Filter list (inside a route).
- Resolved miscellaneous GUI issues related to configuration of items in Patient Identity Management and the IPID Domain Configuration node.
- Resolved issue where duplicate Prefetch Station AE Title rules were created by clicking Apply followed by OK.
- Resolved issue where SQL connections increased under high volume series deletes.
- Resolved issue where the Batch Router Manager displayed completed jobs, even though the option to “Show Completed Jobs” was unchecked.
- Resolved issue where the Batch Study Notification Manager was not displaying the first image if a study was sent twice in separate associations (for Web Services Based Study Notifications).
- Resolved an issue where some inbound stores were rejected due to a zero length Series UID inside a sequence.
- Resolved issue where Tag Rule Routing failed if Tag Mapper was used to manipulate the tag value 2 or more times.
- Resolved issue where Tag Rule Routing was incorrectly using the value inside a sequence under certain scenarios (when it should have used a top level base DICOM tag).
- Resolved various issues related to image transmission (usually occurring on unique datasets and reported from a single site).

## AcuoMed - Batch Managers

- Resolved issue where Batch Move jobs do not timeout under some scenarios (when an external destination stops sending a response).
  - Default timeout = 30 minutes. This can be overridden by the “MoveResponseTimeLimit” registry key (the default is 0, which is effectively off).

## Acuo Tag Mapper

- Resolved issue where Tag Mapper could not find a tag under certain scenarios (resulting in a “Tag Not Found” error).

- Resolved issue where Tag Mapper failed to parse cleanly when more than 10 Tag Mapper tables were used.
- Resolved issue where the Tag Mapper command array did not contain the StartsWithString and EndsWithString descriptions in the TagMapper\_Command\_Log file.
- Resolved issue where the comparison result for the endsWith command was incorrect.
- Resolved issue where Tag Mapper did not allow Leave or Trim commands to be used on tags with a VR of IS (it should).

## AcuoWorkflow (Acuo Patient Management REST Service)

- Resolved miscellaneous issues related to Patient Management web service deletes. Also improved related error messages.

## Acuo Release 6.0.2 (February 20, 2015)

Version 6.0.2 is a Service Pack release containing areas of new functionality, improvements to overall system performance and stability, and other various changes. Updates are found below, with further details found in the corresponding Product Guides.

For installation instructions, refer to the *Acuo Installation Guide 6.0.x*.

## Enhancements

### Patient Identity Management

- Managing patient IDs in a multi-domain environment can now be accomplished without the use of a global patient ID. This may be beneficial for supporting environments where multiple domains exist, each with their own assigning authority for Patient IDs.
- Configuration related to Patient Identity Management is generally found at the Image Manager Server Properties / Patient Identity Management Settings tab (new in 6.0.2). Also needed is the setup/definition of domains (via the IPID Domain Configuration node) with assigned resources, as well as additional options.

For more information, refer to *AcuoMed Image Manager Product Guide 6.0.2.x*.

### IPID Domain Configuration

- A new node is present in the AcuoMed MMC titled "IPID Domain Configuration". This node allows for more efficient configuration and management of IPID domains in one location.

For more information, refer to *AcuoMed Image Manager Product Guide 6.0.2.x*.

### Batch Commit Manager

- Added a new Batch Commit Manager node to the AcuoMed MMC (Batch Processing Managers / Batch Commit Manager). The Batch Commit Manager provides visibility into the Storage Commit Batch queue so users can quickly resolve any jobs that are in a retry state.

For more information, refer to *AcuoMed Image Manager Product Guide 6.0.2.x*.

## Outbound Store – Retry Once On Error

- Added functionality that allows for a single automatic retransmission of an outbound C-Store request when defined criteria are met (based on DICOM tag data in the C-Store response). Criteria may include data found in the Status (0000, 0900) and Error Comment (0000, 0902) tags.

Configuration of this functionality is found at the Properties of an External DICOM Device, Options tab.

For more information, refer to *AcuoMed Image Manager Product Guide 6.0.2.x*.

## Store Destination Filtering

This feature allows an inbound C-Store to be dynamically sent to a subset of destinations based on the presence of certain tag data. In previous versions, similar functionality could be accomplished, although it required a new Route for every unique combination of destinations. For this feature, a single route can be defined to include all possible destinations, along with multiple filters that dynamically route to a subset of the destinations.

Configuration of this functionality involves first enabling this functionality at the properties of a Called AE Name (Main tab), including defining the DICOM tag to use for filtering. Second, configuring all of the filters and assigned destinations for each filter inside the Properties of an existing Route (Storage Destination Filters tab).

For more information, refer to *AcuoMed Image Manager Product Guide 6.0.2.x*.

## Shared Configuration

This functionality was added to allow multiple AcuoMed application servers to share the same configuration. Prior to this feature, AcuoMed application servers had to be configured independently of one another (even though much of the configuration was the same). With this feature, a primary application server (Farm Head) is identified and configured, followed by subsequent application servers (Farm Members) that share the same configuration.

Configuration for Shared Configuration is found at the AcuoMed Image Manager Server Properties, Application Node Settings tab (new in 6.0.2). The default type (or mode) is set to Stand Alone, which is the same behavior as prior releases. Enabling Shared Configuration (setting the type to “Shared Configuration”) involves a series of steps (including a wizard to join servers to the farm), as well as additional assumptions, requirements and limitations that need to be considered before moving to a Shared Configuration environment.

For more information, refer to *AcuoMed Image Manager Product Guide 6.0.2.x*.

## Web Services Based Study Notifications

Functionality for Web Services Based Study Notifications allows notifications to be sent to a configured web service when the first and/or last image for a study is received. When enabled, jobs are logged into the Batch Study Notification Manager queue.

Configuration generally consists of entering the connection information for the web service at the Image Manager Server Properties (Application Node Settings tab) and enabling Batch Study Notification with 1 or more triggers at the properties of a DICOM database.

An external web service is required for this functionality.

For more information, refer to *AcuoMed Image Manager Product Guide 6.0.2.x*.

## Batch Study Notification Manager

Added a new Batch Study Notification Manager queue to log first and last images received for a Study when Web Services Based Study Notifications functionality is enabled.

This queue applies to both the new Study Notification transactions and the existing XDS-I manifest submissions. Tasks are managed by the target database level.

Also added the following corresponding job properties options at the Image Manager Server Properties (Image Manager Server Properties / Batch Processing tab / Batch Study Queue Management section).

- Maximum Number of Running Jobs
- Number of Days to Keep Completed Jobs on Queue

For more information, refer to *AcuoMed Image Manager Product Guide 6.0.2.x*.

## Reconciliation Using an FHIR Web Service

This functionality allows data from a Fast Healthcare Interoperability Resource (FHIR) web service to be used for inbound data reconciliation and verification. When enabled, the inbound PID and Accession Number are read from the inbound C-Store and sent to the web service to extract a new/internal matching PID and Accession Number.

The information extracted from the web service (along with the information received in the original C-Store) is inserted into the HisRis tables and used as a cache for future transactions.

The external data (PID and Accession Number present in the original inbound C-Store) is persisted to the Study Metadata in the DICOM Database under the Source Domain section.

The internal data (PID and Accession Number extracted from the web service) is persisted to the Study Metadata in the DICOM Database under the primary Study and Patient information sections.

Configuration generally consists of entering the connection information for the web service (Image Manager Server Properties), and enabling Reconciliation on a Called AE (with the FHIR Web Service option).

For more information, refer to *AcuoMed Image Manager Product Guide 6.0.2.x*.

## Installation Updates (6.0.2)

- Removed the requirement for installs that the System Prerequisite installer and Host Setup installer need to be run on a standalone SQL Server (it is no longer needed).
- The System Prerequisite installer now prompts the user if the system needs to be rebooted.

## Updates

The following additional updates are also included in 6.0.2.

- Cumulative updates from all previous releases (as of February 10, 2015).
- Removed the option to add a new override node to the Override Data Dictionary (although this was not supported in previous releases, the option was still visible).
- AcuoHA - Resolved issues related to the Test connection button when configuring AcuoHA Publishers and Subscribers.

- Added Issuer of PID as an additional field when right clicking the Batch Move Manager and selecting New Batch Move Request.
- Route View Management – added Issuer of Patient ID as additional column on the search results display.
- Additional details have been added to database connection strings for improved granularity on the source of connections. The following is a listing of new Application Names (found inside the SQL Server Activity Monitor):
  - Application Name=Acuo:Pooled DicomDB (DICOM Database)
  - Application Name=Acuo:Pooled LocalServer AcuoMed (AcuoMed Router Local AcuoMed).
  - Application Name=Acuo:Pooled Enterprise AcuoMed (AcuoMed Router Share Configuration AcuoMed)
  - Application Name=Acuo:Pooled DicomCmd AcuoMed (Front End Command Processor)
  - Application Name=Acuo:Pooled Batch Commit AcuoMed (Batch Storage Commit Manager)
  - Application Name=Acuo:Pooled Batch FixIt AcuoMed (Batch Patient Update Manager)
  - Application Name=Acuo:Pooled Batch Move AcuoMed (Batch Move Manager)
  - Application Name=Acuo:Pooled Batch Repro AcuoMed (Batch Repro Manager)
  - Application Name=Acuo:Pooled Batch Router AcuoMed (Batch Router Manager)
  - Application Name=Acuo:Pooled Batch Store AcuoMed (Batch Store Manager)
  - Application Name=Acuo:Pooled Batch Study AcuoMed (Batch Study Manager)

## Acuo Release 6.0.1 Hotfix 5 (December 10, 2015)

Version 6.0.1 Hotfix 5 is a cumulative release that contains updates and enhancements to the following products.

- AcuoStore Digital Asset Manager™
- AcuoMed Image Manager™
- AcuoSemantix™
- AcuoHA™
- AcuoWorkflow Services™
- AcuoWADO™

For installation instructions, refer to *Acuo Installation and Setup Guide 6.0.x*.

### Enhancements

#### AcuoStore, Archive Device, and Tier Manager

- Added protections against the Acuo Tier Manager running on multiple systems against the same database.

- Added support for higher numbers of writer threads, cache cleaner threads, and max allowed addresses. Details are as follows:
  - Number of Writer Threads: Found at the properties of an Archive Device, Writer/Cache Control Parameters, **Max Threads** field. The maximum number of acting threads can now be greater than 30 (this was previously limited regardless of the value in the configuration).
  - Number of Cache Cleaner (Deletion) Threads: This is set in the registry under the setting: ...\\Wow6432Node\\Acuo Technologies\\AcuoStore\\Server\\**CacheMgrParallelDeleteCount**. The maximum number of acting threads can now be greater than 30 (this was previously limited regardless of the value in the configuration).
  - Number of Allowed Round Robin Addresses: Found at the properties of an Archive Device, Advanced Options, **Max Addresses** field. The number of configurable addresses is no longer limited to 100.

## AcuoMed

- Improved outbound store performance (results may vary depending on site configuration, workflow, other variables).
- Added an option in the GUI/MMC to utilize AcuoAccess for viewing images inside Patient Management via WADO. At the AcuoMed Image Manager snap-in, Image Manager Server Properties, Patient Management tab, the following options are now present:
  - **Server Name and Port:** These are the same fields that were present in prior releases.
  - **Legacy Wado:** This option is newly visible in this release, although it functions the same as prior releases for WADO viewing. It utilizes the install and configuration from an “AcuoWADO” install.
    - Default Port for Legacy Wado: 9000
  - **Restful Wado:** This option is new in this release. It utilizes an install and configuration of “AcuoAccess” for WADO viewing.
    - Default Port for Restful Wado: 8081
  - **Other (with free form input):** Also new in this release, allows for editing the HTTP prefix.
- Added better tracing for IOCM processing for cases when images are not deleted.

## Updates

### AcuoStore, Archive Device, and Tier Manager

- Resolved AcuoStore/Tier Manager memory leak when an archive device is configured.
- Removed a redundant read of a file when writing to archive devices.
- Resolved issue where .tmp files are left on the system under certain conditions and when the active share changes.
- Resolved issue writing to Dell DX archive devices where CRLF characters were found in the metadata.

- Changed the following event from an Error to Warning (since this can occur occasionally during normal operation):
  - The Atmos Blob Reader encountered an exception: msg:  
Acuo.ArchiveLib.MultiFileException: MFOS error. LocalPos: 198086 index: 56 --->  
System.IO.IOException: The process cannot access the file... because it is being used by another process.
- If an archive device is down or unavailable, changed some events from Errors to Warnings (Error events should generally not be seen in these scenarios).

## AcuoMed

- Resolved various issues related to image ingestion and/or transmission (usually occurring on unique datasets and reported from a single site).
- Resolved issue where Explicit VR Little Endian data would not send outbound in its existing format if the registry setting "DisableCompressionToUIDs" was set and took effect (data was sent Implicit VR Little Endian).
- Resolved issue where Postfetch generated moves did not always find all studies when the external device was configured to only accept the Study Root Move SOP.
- Resolved AcuoMed Service interruption that can occur under certain conditions when an inbound C-Move is received that results in outbound C-Stores to multiple destinations (and the images being moved are sporadically being replaced via duplicates processing).
- Resolved issue where some C-Finds containing sequences would not be processed.
- Resolved issue where images compressed Lossy were sometimes not identified as duplicates (this occurred only under certain workflow scenarios).
- Resolved issue where some images could not be transmitted outbound in a compressed format when the Strip Private Tags option was enabled on the External DICOM Device (and the images contained private sequences).
- Resolved miscellaneous issues that could result in AcuoMed Service interruptions.
- Resolved memory leak in AcuoMed that may result from certain error conditions or transmission of data containing large sequences.
- Resolved issue where some Batch Store jobs went into a Paused status if the External DICOM Device was set to Group By Study mode and the study contained specific combinations of 2 or more SOP classes.
- Removed artificial limit of 50 databases for Storage Commit processing. Prior to this update, if 51 or more databases were configured for Storage Commit, this resulted in an AcuoMed Service interruption.
- Resolved issue where the machine name was not saved with the MMC console for an "Acuo IHE Audit/Recycle Bin Manager" standalone snap-in.

## Batch Managers

- Batch Store – resolved issue where completed jobs could not be removed under certain conditions.

## Acuo Tag Mapper

- Resolved error when adding a Begin Item following a Seq\_Open command.
- Resolved parsing error on “SEQ\_Close” command.
- Resolved issue related to ANDIF logic when false conditions are hit.
- Resolved issue related to deletion of sequences on outbound C-Stores.
- Resolved processing error related to tags within a sequence under certain conditions.

## AcuoWorkflow (Acuo Patient Management REST Service)

- Resolved issue where web service deletes would intermittently fail (when attempted on large DICOM databases).

## Tools

- StoreAsiffFile - Resolved issue related to parsing of Explicit VR Little Endian data where the VR of the data was inconsistent with the DICOM Standard (pixel scan option).

# Acuo Release 6.0.1 Hotfix 4 (June 10, 2015)

Version 6.0.1 Hotfix 4 is a cumulative release that contains updates and enhancements to the following products.

- AcuoStore Digital Asset Manager™
- AcuoMed Image Manager™
- AcuoSemantix™
- AcuoHA™
- AcuoWorkflow Services™
- AcuoWADO™

For installation instructions, refer to *Acuo Installation and Setup Guide 6.0.x*.

## Enhancements

### AcuoStore, Archive Device, and Tier Manager

- Modified the Acuo Tier Manager and AcuoStore Service to no longer be reliant on the contents of the XML metadata in the STF\_ATTACHED\_FILE column of the AcuoStore DB “STORAGE\_FILE” table. This will result in improved storage efficiency in the AcuoStore database.

### AcuoMed

- Modified data in the Failure Reason tag (0008, 1197) that is returned when a Storage Commit failure occurs.

## AcuoSemantix

- Added the ability to queue a configured number of Batch Moves to multiple destinations. Additional details:
  - Previously, the “esdefault” Prefetch rule was used to queue Batch Moves jobs from AcuoSemantix (using 1 Source Route and 1 Move Destination AE Title). New functionality added in this release allows AcuoSemantix to queue a configured number of Batch Move jobs to multiple destinations (using multiple Prefetch rules).
  - Summary of configuration steps:
    - Add parameters **RoundRobin1**, **RoundRobin2**, etc... to the **AcuoSemantixConfig.xml** file. Each RoundRobinX instance is configured with the number of Batch Moves that will be queued to matching Prefetch rule. Example:
      - `<RoundRobin1>5</RoundRobin1>`
      - `<RoundRobin2>8</RoundRobin2>`
      - `<RoundRobin3>3</RoundRobin3>`
    - Set up corresponding Prefetch rules titled RoundRobin1, RoundRobin2, etc...
  - Additional notes:
    - A maximum of 9 RoundRobinX parameters are allowed (RoundRobin1 to RoundRobin9).
    - A value of 0 (zero) for a RoundRobinX instance in the AcuoSemantixConfig.xml file indicates that a destination will be skipped (nothing will be queued to the corresponding Prefetch rule). This may be helpful when a destination needs to be temporarily skipped.
    - The RoundRobin functionality cannot be used in conjunction with the “esdefault” rule (if RoundRobin functionality is configured, the “esdefault” Prefetch rule will be ignored and should generally not be present).
- Added a memory based cache to automatically mark duplicate ADT^A08 messages complete if there are no changes to patient demographics. Additional details:
  - If the cache is enabled, AND the Name, PID, Date of Birth and Patient Sex are all identical (to a previously received message), the message is automatically marked completed. If 1 or more of these fields is different, the memory cache will not take effect (and the message is processed normally).
  - If a message is automatically marked completed, the following text will appear in the T\_ARPS\_RIS\_EVENTS table, ARPS\_RE\_RESULT column: ***“HL7 Message Processed! – Skipped due to Duplicate Patient Demographics!”***
  - Summary of configuration steps:
    - Add new parameter **MemoryCacheRetention** to the **AcuoSemantixConfig.xml** file.  
**Example:**
      - `<MemoryCacheRetention>120</MemoryCacheRetention>`
        - The cache is configured with number of minutes information is to be retained.
        - Default is OFF.

- If the parameter (MemoryCacheRetention) is not present, or set to 0, this functionality is disabled.
- Remove Patient Name and Patient ID from Study Level move requests.
- Added ability to issue a study level move using Accession Number.
- Modified processing to reduce the number of entries being added to the AcuoMed HisRis Event table (T\_HISRISSEVENTINFO\_RIS) for duplicate messages. General summary of updated behavior:
  - For ADT messages, a HisRis event record is inserted if no associated patient record currently exists.
  - For ORM messages, a HisRis event record is inserted if no patient record currently exists for the matching Accession Number (a new record is inserted if there is no matching Accession Number).

## AcuoHA

- Increased allowed limit for Group Monitor Threads inside the Publisher configuration (changed limit from 20 to 200).

## AcuoWorkflow (Acuo Patient Management REST Service)

- Added functionality to allow Acuo Fixit messages to be propagated on “delete all” web service requests (if a propagation route is configured).

## Updates

### AcuoStore, Archive Device, and Tier Manager

- Modified the Acuo Tier Manager and AcuoStore Service to no longer be reliant on the contents of the XML metadata in the STF\_ATTACHED\_FILE column of the AcuoStore DB “STORAGE\_FILE” table. This will result in improved storage efficiency in the AcuoStore database.
- Resolved issue where .tmp files can be left behind when the active share for an AcuoStore application is changed.
- Resolved issue where errors may occur writing to a FileStore Archive Device Type if the metadata has invalid characters.
- Resolved issue where the following event would sometimes occur: “Cache Manager Warning Event” “Cache Manager Error. Type: Candidate Processing Error...”
- Resolved issue where the following writer errors could sometimes occur (at certain sites) when using EMC Centera as an archive device:
  - *Archive Writer Thread Error. message: Index was out of range. Must be non-negative and less than the size of the collection. Parameter name: index*
  - *Requested ArchiveTypeCentera Address: 10.11.123.44*
  - *Candidate Files:\path1\Acuo\042315\08\@12345*
- Resolved issue where the Cache Manager Information Event ID 1217 (Cache Manager summary event) displayed an incorrect byte size.

## AcuoMed

- Resolved issue where some images (at a single site) could not be compressed Lossless for Inbound Compression.
- Resolved issue where prefetch (C-Move) jobs were not getting scheduled from a DICOM Modality Worklist connection due to the last tag in the Dicom search order (Scheduled Procedure Step Location) having a blank value in the C-Find response.
- Resolved miscellaneous issues related to sequences and image transmission.
- Resolved issue where the Batch Router Manager displayed completed jobs, even though the option to “Show Completed Jobs” was unchecked.

## Batch Managers

- Resolved issue where Batch Move jobs do not timeout under some scenarios (when an external destination stops sending a response).
  - Default timeout = 30 minutes. This can be overridden by the “MoveResponseTimeLimit” registry key (the default is 0, which is effectively off).

## Acuo Tag Mapper

- Resolved issue where Tag Mapper could not process items inside a sequence under certain conditions.

## AcuoSemantix

- Removed the following informational event that is output for every processed HL7 message: “AcuoSemantix is now processing a message”.

## AcuoHA

- Resolved issue where Subscriber tasks occasionally took longer than expected to complete when the completed queue becomes large.

## AcuoWorkflow (Acuo Patient Management REST Service)

- Resolved miscellaneous issues related to Patient Management web service deletes. Also improved related error messages.

## AcuoWADO

- Resolved miscellaneous issues where images would not display in Patient Management.

## Acuo Release 6.0.1 Hotfix 3 (April 10, 2015)

Version 6.0.1 Hotfix 3 is a cumulative release that contains updates and enhancements to the following products.

- AcuoMed Image Manager™
- AcuoStore Digital Asset Manager™

For installation instructions, refer to *Acuo Installation and Setup Guide 6.0.x*.

### Enhancements

#### AcuoMed

- Improved compression memory utilization.
- Modified Relevancy Filtering functionality to be disabled for Study Level Moves generated from AcuoSemantix (relevancy filtering assumes certain tags are present, this functionality is not supported with Study Level Moves)
- For Inbound Compression, add Lossless and J2K Lossless Support for the Breast Tomosynthesis SOP (1.2.840.10008.5.1.4.1.1.13.1.3).

#### Acuo Tag Mapper

- Added ability for inbound Tag Mapper to build nested sequences.

#### GUI

- Added the ability to manually enter or modify the AcuoStore Share path (previously, all shares had to be selected from a drop-down box listing only shares that have actually been created).
- Changed the default Batch Mode for newly created External DICOM Devices to Group By Study UID (previously, the default was Multiple Stores Per Association). Although there are some devices where this mode may not be the best choice, this option is the best overall combination of interoperability and performance.
- On the properties of a Route, the Reconciliation radio button is now hidden for all non-Reconciliation routes. Previously, the Reconciliation Route type was visible, grayed out and unselectable for all non-Reconciliation routes (only 1 is allowed per system and existing routes cannot be changed to a Reconciliation route).
- Removed "DicomDb1" as the default Database Name when creating a new DICOM Database Destination (DICOM Database Connection tab).

### Updates

#### AcuoStore, Archive Device, and Tier Manager

- Corrected some information in writer-related error events.
- Resolved issue related to an archive writer SQL timeout under certain conditions.

- Other miscellaneous improvements related to error handling.

## AcuoMed

- Postfetch Related Updates
  - Modified Postfetch generated moves to include the current day if the months back (Study End Date Range) is set to 0. Previously, the Study End Date was always set to yesterday.
  - Resolved an issue where the Study Start Date would not go back to an exact interval from the current day.  
Example: If today is 4-23-2015 and the Postfetch move criteria is set to “24 months back through 0 months back”, the Study Date Range used is 4-23-2013 to 4-23-2015.
  - Resolved issue where Relevant Priors functionality was not taking effect for moves generated from Postfetch.
- Tag Rule Routing Updates
  - Resolved issue where Tag Rule Routing would sometimes (incorrectly) use the first occurrence of a tag (for example, a tag inside a sequence) instead of using the top-level occurrence of a tag.
  - Resolved issue where Tag Rule Routing failed in some cases when the value of a tag was set twice by Tag Mapper.
- Resolved MMC crash that occurred on some systems when selecting the SOP Configuration tab inside a Called AE Name.
- Resolved an issue where some inbound stores were rejected due to a zero length Series UID inside a sequence.
- Removed an insignificant error event that appeared in the Acuo Event Log if a Batch Reprocessing job runs when the reconciliation source is unavailable.
- Resolved issue where duplicate Prefetch Station AE Title rules were created by clicking Apply followed by OK.
- Resolved various issues related to image transmission (usually occurring on unique datasets and reported from a single site).

## Acuo Tag Mapper

- Resolved issue where the comparison result for the endsWith command was incorrect.
- Resolved issue where Tag Mapper returns a “Tag Not Found” error in some cases where the tag is actually present.
- Resolved issue where Tag Mapper failed to parse cleanly when more than 10 Tag Mapper tables were used.
- Resolved issue where Tag Mapper did not allow Leave or Trim commands to be used on tags with a VR of IS (it should).
- Resolved issue where the Tag Mapper command array did not contain the StartsWithString and EndsWithString descriptions in the TagMapper\_Command\_Log file.

## Batch Managers

- Resolved issue where Batch Moves hung in a Running state when there are 30,000+ images to be moved for a single patient, and they are all filtered due to the Filter Move By Target functionality.
- Resolved issue where Batch Move counts for number of remaining and number of successful images were sporadically incorrect for Batch Move jobs with large image counts (30,000+).

## GUI

- Removed “DicomDb1” as the default Database Name when creating a new DICOM Database Destination (DICOM Database Connection tab).

## Acuo Release 6.0.1 Hotfix 2 (December 10, 2014)

Version 6.0.1 Hotfix 2 is a cumulative release that contains updates and enhancements to the following products.

- AcuoMed Image Manager™
- AcuoStore Digital Asset Manager™
- AcuoSemantix™
- Acuo XDS Repository™
- Acuo XDS Accelerator™

For installation instructions, refer to *Acuo Installation and Setup Guide 6.0.x*.

## Enhancements

### Acuo XDS

- In the MMC, under the Acuo XDS Manager node, added scrollbars to the affinity domain and corresponding repository template dialog boxes to provide better visibility and access to the Apply, Cancel, and OK buttons at the bottom of the dialog boxes.
- When a database re-establishes a connection, Acuo XDS Accelerator now automatically reconnects to the database. Previously, Acuo XDS Accelerator might not automatically reconnect to the database after the database loses a connection.

### AcuoStore, Archive Device, and Tier Manager

- Enhanced AcuoStore and Acuo Tier Manager Service performance.
- When configuring an archive device and Hitachi is selected, the SSL option is now enabled.

### AcuoSemantix

- Added study-level move support, which included the following updates.
  - Added SendBatchMoveStudy activity to the ActivityList.xml file.
  - Added SendBatchMovePatient activity to the ActivityList.xml file. This activity functions the same as the previous SendBatchMove activity, and was added to help differentiate it from the new SendBatchMoveStudy activity.

- Retained the existing SendBatchMove activity for backward compatibility.

For more information, refer to the *AcuoSemantix Installation and Operations Guide 6.0.1.x*.

## Move-Through Retrieval

- The new Move-Through Retrieval functionality gives the Acuo temporal node that receives C-Moves the ability to retrieve images from an external archive device and deliver the images to a move destination AE without the external archive devices having any knowledge of the move destination. This allows configuration to be stored in the temporal node, eliminating the need to configure the archive device for every possible move destination.

For more information, refer to the *AcuoMed Image Manager Installation and Operations Guide 6.0.1.x*.

## Acuo TagMapper

- Added enterprise TagMapper support to give TagMapper the ability to run on multiple systems with a single command file when all system processing is the same. Also added a new command, ReadFile, which provides multiple systems access to a single TagMapper command file.

For more information, refer to the *AcuoTagMapper Installation and Operations Guide 6.0.1.x*.

## Batch Managers

- Improved run time of Batch Move jobs when Filter Move By Target is enabled and all images are already present at the target destination. These jobs now complete with a lower “Time To Run”. Total improvement will depend on the number of images involved in the move.
- When Filter Move By Target is enabled and the target device is unreachable, the Batch Move job now goes into a Retry status. Previously, the job immediately went into a Paused status.

## Association time limit

- Reduced the default timeout for inbound connections that do not establish an association request and do not disconnect. The new default timeout is 30 seconds.

## Miscellaneous Updates

- Performed various improvements related to tracing and events.

## Updates

### AcuoSemantix

- Removed an SQL agent job previously used by AcuoSemantix to clean up HL7 events. The CleanUpDelayDays parameter in the AcuoSemantixConfig.xml file now controls HL7 event cleaning.

### AcuoMed Interoperability

- Resolved an issue that sometimes occurred with images in Run-length encoding (RLE) Lossless format. Previously, some RLE Lossless images could not be transmitted.

## IOCM (Imaging Object Change Management)

- Resolved an issue where images might not be deleted from a DICOM database when the IOCM Key Object Selection SOP was received.

## Miscellaneous Updates

- Performed various improvements related to tracing and events.
- Resolved various issues related to image transmission occurring only with specific data and at single installation sites.
- Removed a requirement related to inbound C-Stores. The Modality tag (0008, 0060) is no longer required for all inbound C-Stores. Note that not all SOP classes require this tag.
- Resolved an issue where some associations could not be established when TLS encryption was enabled.

## Acuo Release 6.0.1 Hotfix 1 (October 7, 2014)

Version 6.0.1 Hotfix 1 is a cumulative release that contains updates and enhancements to the following products.

- AcuoMed Image Manager™
- AcuoStore Digital Asset Manager™
- Acuo High Availability (HA)™
- AcuoWorkflow™
- Acuo XDS Registry™

For installation instructions, refer to *Acuo Installation and Setup Guide 6.0.x*.

## Enhancements

### Batch Managers

- Batch Router Manager:
  - Batch Router Manager is now available in Patient Management Standalone installations.
  - Enhanced performance and job status functionality.

### AcuoStore, Archive Device, and Tier Manager

- Enhanced AcuoStore and Acuo Tier Manager Service performance.

### AcuoMed Interoperability

- Enhanced memory utilization for compression and decompression.
- Added Lossless (1.2.840.10008.1.2.4.70) and JPEG2000 Lossless (1.2.840.10008.1.2.4.90) support for the Breast Tomosynthesis Image Storage SOP (1.2.840.10008.5.1.4.1.1.13.1.3).

## Acuo TagMapper

- Performed memory cleanup to enhance error processing.

## Acuo XDS Registry

- Added support for Home Community ID to facilitate operation with the XCA Responding Gateway.

## Acuo HA (High Availability)

- Added support to replicate the XDS repository without an Acuo or Perceptive registry.

## Updates

### Batch Managers

- Batch Move Manager: Resolved an issue in Batch Move Manager where the number of images sometimes displayed incorrectly in the Remaining column.

### AcuoStore, Archive Device, and Tier Manager

- Resolved an issue where the asset size sometimes displayed incorrectly in the AcuoStore database (STORAGE\_FILE table; STF\_LENGTH column).

### AcuoMed Interoperability

- Resolved an issue that sometimes occurred when transmitting Explicit VR Little Endian data. Previously, the data could not be transmitted outbound.
- Resolved an issue that sometimes occurred when decompressing images with a Photometric Interpretation of YBR\_FULL. Previously, these images could not decompress and send outbound.
- Resolved an issue that sometimes occurred when ingesting Key Object Selection objects (1.2.840.10008.5.1.4.1.1.88.59). Previously, the objects could not be received inbound.
- Resolved an issue that sometimes occurred when transmitting Grayscale Softcopy Presentation State objects (1.2.840.10008.5.1.4.1.1.11.1). Previously, the objects could not be sent outbound.

### C-Move and C-Find

- Resolved an issue that sometimes occurred when processing inbound C-Finds containing sequences. Previously, the service might not respond.
- Resolved an issue that occurred when processing inbound C-Moves where several UIDs spanned multiple PDUs. Previously, not all image UIDs were moved.

### Recycle Bin

Resolved an issue with the Recycle Bin where some error conditions affected the ability to subsequently delete new files.

### Patient Management

Resolved an issue where AcuoMed would sometimes not respond when an image level delete was made from a large DICOM database.

## Acuo TagMapper

- Resolved an issue where a modified tag contains extra data when populated from a database column defined as varchar(MAX).

## Acuo Workflow

- Resolved an issue where a Patient Management Web Service delete with Deletion Exclusion selected resulted in an incorrect error message.
- Resolved an issue where a Patient Management Web Service delete could not complete when the SOP Instance UID maximum size was 66 bytes.

## Miscellaneous Updates

- Updated DecodeDICOM and StoreAsiffFile tools.
- Cumulative update containing various improvements to stability and interoperability.

# Acuo Release 6.0.1 (June 24, 2014)

Version 6.0.1 is a Service Pack release containing areas of new functionality, system performance and stability improvements, and other various changes.

For installation instructions, refer to the *Acuo Installation and Setup Guide 6.0.x*.

## Enhancements

### Deletion Exclusion

You can now prevent users from deleting a patient's images by enabling the Deletion Exclusion feature for the patient in Patient Management.

### Patient Time of Death

AcuoSemantix, Patient Management, and Retention/Purge policies now support Patient Time of Death information.

- **Patient Management**  
Added a new field for entering a patient's time of death. The new Date/Time of Death field is located in Patient Management > Edit Existing Patient and in Patient Management > View Patient Metadata.
- **Retention/Purge Policies**  
Added a new field for designating the number of days after the patient's time of death in which the patient's images should be deleted. The new Patient Time of Death (> than days) field is located in the Policy Builder dialog box when you set up a new policy.
- **AcuoSemantix**  
When AcuoSemantix receives an HL7 message with patient time of death information, it can now add that information to the Acuo HIS/RIS tables in the AcuoMed Database. In addition, if configured, an

Acuo Fixit message is generated to update the patient record with the patient time of death information.

## Priority Based Federation

When configuring a route with multiple destinations, you can select a Federation option that allows AcuoMed Server to return results only from a destination on the highest-level priority route. Once AcuoMed Server finds the image, the search stops and images from other destinations are not returned. This feature is also available for moves; only images from the highest-level priority route are moved.

For more information, refer to the *AcuoMed Image Manager Installation and Operations Guide 6.0.1*.

## XDS

### Enterprise XDS

- XDS storage and metadata replication
- XDS Repository cache
  - Prefetching
  - Deletion/watermarking
  - Proxy retrieval

**XDS Registry and Repository Asynchronous Operations:** The XDS Repository and Registry support asynchronous web service calls for all XDS transactions.

**XDS Repository Compression:** XDS documents may be stored GZIP compressed based on configurable storage rules.

**XDS Registry Reference Id Support:** Added FindDocumentsByReferenceId Stored Query.

**Repository XDR Publisher:** Repository acts as an XDR Source by forwarding received submissions to configurable destinations.

## Inbound Compression

You can use the Inbound Compression feature to compress data when storing it directly to a DICOM database. Previously, you could perform this same functionality through a configuration where data was sent outbound from an Acuo server back to itself, then finally to the DICOM database.

For more information about configuring Inbound Compression, refer to the *AcuoMed Image Manager Installation and Operations Guide 6.0.1*.

## Batch Router Manager

Batch router management is now available for managing jobs in a queue. Enabling Batch Router reduces AcuoMed's response time to a DICOM C-Store after all data has been received.

For more information, refer to the *AcuoMed Image Manager Installation and Operations Guide 6.0.1*.

## Primary and Secondary Storage Destinations

When defining image route destinations, you can now designate a primary and secondary storage destination. The image is routed to the primary storage destination. If the primary storage destination accepts the image, it is routed to the secondary storage destination.

For more information about configuring primary and secondary storage destination routes, refer to the *AcuoMed Image Manager Installation and Operations Guide 6.0.1*.

## AcuoHA

- Added support for multiple subscribers in an AcuoHA configuration.
- Removed propagation route requirements. Previously, a propagation route was required on all Publisher Databases for edits, deletes, and merges.

## Patient Management

Effective in version 6.0.0, Patient Management edits/updates are kept in the DICOM Database, not in the file. In 6.0.1., users can now rebuild the DICOM Database and restore image history to the associated image files.

## IOCM (Imaging Object Change Management)

- Added support for IOCM delete propagation to non-Acuo devices.
- Added a new field, IOCM Propagation Route, to the DICOM Database Properties, DICOM Database Settings tab, and Change Management Routes section.

## Explicit VR Little Endian

Added outbound support for Explicit VR Little Endian data. Previously, Explicit VR Little Endian data could only be received inbound. The Explicit VR Little Endian Transfer Syntax has also been added to the GUI under the configuration for both Called AE Names and External DICOM Devices.

## Acuo Cache Manager

Removed the Acuo Cache Manager Service. The Acuo Tier Manager Service now handles all associated functionality.

## AcuoStore, Archive Device, and Tier Manager

- For EMC Centera archive devices, the Acuo Tier Manager Service now handles writing in 6.0.1. Previously, the AcuoStore Service handled writing for EMC Centera devices.
- Removed the User tab for Application User/Password authentication on the configuration of an AcuoStore Application. These fields have also been removed from the following related areas:
  - Under the properties of a DICOM Database, on the Storage Server Connection tab, the User Name and User Password fields are no longer present.
  - (AcuoMed) Image Manager Server > Properties > Storage Server DILIB Connection. The only remaining field is the dilib Application Name (the User Name and User Password fields are no longer present).
- Improved overall stability and performance of read/write functionality, including changes for more efficient support and troubleshooting.

## TagMapper

- Added a new command: ORIF. Previously, only “AndIf” was supported. When AndIf is processed, the first condition that is false causes the effect block to be skipped prior to the ELSE statement if coded. OrIf is processed just the opposite. When the first condition evaluates true, then the effect block would be processed.

### Example 1

- if 0010,0010 = <EXISTS>
- OrIf 7e1f,0001 = (ColumnA)
- Then
- replace 7e1f,0002 = (ColumnB)
- endif
- Analysis: If 0010,0010 = <EXISTS> evaluates true, NO query would be made to evaluate 7e1f,0001. The replace could not be done, as the value of ColumnB is not known.

### Example 2

- if 0010,0010 = (ColumnA)
- OrIf 7e1f,0001 = (ColumnA)
- Then
- replace 7e1f,0002 = (ColumnB)
- endif
- Analysis: ColumnB is accessible if either condition were true.

### Summary

- Therefore, no Column References are allowed in the effect subblock(s) unless ALL conditional tests are against columns.
- 
- Added support for reserved words on the following commands.
    - Append
    - Prepend
    - SetColumn
    - Where
    - ReplaceText

## Install and upgrade procedure

For 64-bit systems, combined the Host Setup installer into one installer. Previously, an x32 and x64 installer was required on 64-bit systems.

## OS/SQL support

- Added support for Windows Server 2012 and 2012 R2, SQL Server 2012, and Windows 8.
- Dropped support for Windows XP.

## Acuo Release 6.0.0 Hotfix 7 (November 10, 2014)

Version 6.0.0 Hotfix 7 is a cumulative release that contains updates and enhancements to the following products.

- AcuoMed Image Manager™
- AcuoStore Digital Asset Manager™

For installation instructions, refer to *Acuo Installation and Setup Guide 6.0.x*.

## Enhancements

### AcuoMed Interoperability

- Enhanced memory utilization for compression and decompression.

## Updates

### AcuoMed Interoperability

- Resolved an issue that sometimes occurred with images in Run-length encoding (RLE) Lossless format. Previously, some RLE Lossless images could not be transmitted.
- Resolved an issue that sometimes occurred when transmitting Explicit VR Little Endian data. Previously, the data could not be transmitted outbound.
- Resolved an issue that sometimes occurred when transmitting Grayscale Softcopy Presentation State objects (1.2.840.10008.5.1.4.1.1.11.1). Previously, the objects could not be sent outbound.

### Patient Management

- Resolved an issue where AcuoMed would sometimes not respond when an image level delete was made from a large DICOM database.

### Batch Managers

- Resolved an issue in the Batch Move Manager where the remaining count field sometimes displayed an incorrect value.
- Resolved an issue where some Batch Move jobs would not immediately start.

- Resolved an issue where an image level Batch Move request could not be processed successfully in some cases where SOP instance UIDs spanned multiple PDUs.
- Previously, when opening a Properties dialog box for a batch processing manager, the dialog box displayed behind another MMC window. Now, the dialog box displays on top of other open MMC windows.
- Resolved an issue with the batch queue status when launching the MMC. Previously, the status might not indicate OFF when the batch queue was disabled.

## Acuo TagMapper

- Resolved an issue where TagMapper would sometimes not prune log files when the command file had parsing errors.

## C-Move and C-Find

- Resolved an issue that occurred when processing inbound C-Finds containing sequences. Previously, the service might not respond.

## Association time limit

- Reduced the default timeout for inbound connections that do not establish an association request and do not disconnect. The new default timeout is 30 seconds.

## AcuoStore, Archive Device, and Tier Manager

- When configuring an archive device and Hitachi is selected, the SSL option is now enabled.
- Resolved an issue where the Acuo Tier Manager Service would not always stop in a timely manner.
- Updated and enhanced Acuo Tier Manager writing operations.

## Miscellaneous Updates

- Updated DecodeDICOM, StoreAsiffFile, and DumpAsiff tools.
- Various improvements related to tracing and events.