AccessNET®

HL7 Conformance Statement and Functional Specification

version 7.0.0

A S P Y R A ™

Extending Your Reach

WARNING
The AccessNET™ system is intended for use only by qualified medical or systems administration personnel. Users must be thoroughly trained and knowledgeable in the use of the software and equipment. Use by unauthorized personnel can result in a breach of security and could compromise patient care.

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0. Introduction

HL7 is an industry standard dealing with the interchange of healthcare data between systems in a healthcare enterprise. This standard establishes a message format used to communicate healthcare data between HL7 compliant systems. The HL7 standard also defines the message types that communicate a specific subset of information along with the information, or fields, included in each message type. Standards-based, non-proprietary communication, such as HL7, has several advantages. Systems that communicate using HL7 can easily integrate with other HL7 compliant healthcare systems. Because of this, healthcare facilities have more options when purchasing new healthcare systems.

AccessNET is an HL7 compliant system that conforms to the HL7 standard version 2.5 and prior. The AccessNET system has also been developed in accordance to the Integrating the Healthcare Enterprise (IHE) initiative. IHE is an initiative developed and coordinated by healthcare professionals and industry to improve the way computer systems in healthcare share information. IHE promotes the coordinated use of established standards, such as DICOM and HL7, to address specific clinical needs in support of optimal patient care.

Although AccessNET is an HL7 compliant system, this does not guarantee 100% compatibility with other third-party systems that communicate via HL7 messages. Furthermore, previous success interfacing with an HL7 compliant system does not guarantee success with the same application at a different installation. Aspyra recommends that you conduct testing between the AccessNET system and any other third-party HL7 compliant systems to ensure compatibility.

1. References

- Health Level Seven Version 2.3 specification, Section C.4.2 Minimal Lower Layer Protocol

2. Definitions

- HL7 - Health Level Seven (HL7) is an industry standard for healthcare data interchange between systems. This standard establishes a message format for the data and defines the messages types which can carry subsets of information.
- IHE - Integrating the Healthcare Enterprise (IHE) initiative promotes established standards, such as DICOM and HL7, to address specific clinical needs and improve information sharing.

3. Implementation Model

3.1   Network Communications and HL7 Message Format

For transferring messages on the network, the AccessNET HL7 Interface supports TCP/IP socket connections. AccessNET supports the HL7 Minimal Lower Layer Protocol for framing HL7 messages.

3.1.1 HL7 Minimal Lower Layer Protocol

The Minimal Lower Layer Protocol is described in section C.4.2 Minimal Lower Layer Protocol of the Health Level Seven Version 2.3 specification.

With this protocol, an HL7 message is formatted with a single character to start the data message and two characters to terminate the message. No other characters are added to the HL7 message.

HL7 messages are enclosed by special characters to form a block. The format is as follows:
        <SB>dddd<EB><CR>
Where:

<SB> = Start Block character (1 byte)
        ASCII <VT>, decimal <11>, hex <0B>

dddd = Data (variable number of bytes)

This is the HL7 data content of the block. The data can contain any displayable ASCII characters and the carriage return character, <CR>.

<EB> = End Block character (1 byte)
        ASCII <FS>, decimal <28>, hex <1C>.

<CR> = Carriage Return (1 byte)
        ASCII <CR>, decimal <13>, hex <0D>.

3.1.2 Acknowledgement Messages for Network Communications

If AccessNET is the message sender, it will expect an acknowledgement message that contains the MESSAGE CONTROL ID of the message it originally sent. AccessNET will not process any application level error messages or any delayed acknowledgement messages.

If AccessNET is the message receiver, it will send an ACK general acknowledgement message which contains the MESSAGE CONTROL ID of the message it received. AccessNET will not send out any application level error messages or any delayed acknowledgement messages.

3.2   Inbound HL7 Messages

Inbound HL7 messages are handled by two AccessNET services—the HL7 Interface and the HL7 Message Processor. The HL7 Interface handles all communication with other HL7 compliant host systems. It listens on one or more TCP/IP ports for connections. As a connection is made, it receives each HL7 message, verifies the structure of the message, and records the message to a message queue. After adding the message to the queue, it acknowledges the receipt of the message to the sender. If the structure of the message is invalid or the HL7 Interface cannot record the message to the queue, the HL7 Interface responds with a negative acknowledgement.

The HL7 Message Processor is responsible for processing the messages that the HL7 Interface adds to the message queue. At specified intervals, the HL7 Message Processor checks the queue and if any transactions exist, the HL7 Message Processor moves the messages to a work queue. The HL7 Processor then processes each transaction in the work queue sequentially and initiates updates to the AccessNET database.

3.2.1 Supported HL7 Message Types

When the HL7 Message Processor processes an inbound HL7 message, it first determines the HL7 message type. Then it uses a message map to determine the specific information to extract from the message and adds it to the AccessNET database. An HL7 message map is used to specify the AccessNET database fields where the HL7 Message Processor stores the data extracted from an HL7 message. The AccessNET system supports the following message types: ADT, ORM, SIU, ORR and ORU.

3.2.1.1 General ADT Message Processing

When processing an ADT message, the HL7 Message Processor either inserts a new patient record into the database or updates an existing patient record. If the Patient ID supplied in the message does not exist in the database, a new patient record is inserted into the database using the information extracted from the message. When an ADT message refers to a patient already present in the AccessNET database, the patient record is updated according to the information extracted from the message.

Additional processing is performed by the HL7 Message Processor to merge patients and visits. When an ADT message that contains a Prior Patient ID and a Prior Visit ID is encountered, all orders associated with the Prior Patient ID and Prior Visit ID are linked to the new Patient ID and updated with the new Visit ID. When an ADT message that contains a Prior Patient ID only, all orders associated with the Prior Patient ID are linked to the new Patient ID.

The HL7 Message Processor may also utilize ADT Encounter messages for order management. These messages are treated identically to ORM messages.

3.2.1.2 General ORM Message Processing

When processing an ORM message, the HL7 Message Processor first determines whether the message is a cancel request. If it is a cancel request, the HL7 Message Processor attempts to locate the corresponding exam from the AccessNET database. If it can locate the exam and the exam does not contain any images or reports, it deletes the exam record from the database. If the ORM message is not a cancel request, the Processor uses the patient information supplied to insert a new patient record or update an existing patient record in the database. The HL7 Message Processor then uses the exam order information from the message and either updates an existing exam in the database or inserts a new exam into the database.

3.2.1.3 General SIU Message Processing

The HL7 Message Processor treats SIU messages almost identically to ORM messages.

3.2.1.4 General ORR Message Processing

The HL7 Message Processor treats ORR messages almost identically to ORM messages. If it receives an ORR Message in response to a cancel request, it processes the cancellation. If the ORR message does not correspond with a cancellation, the HL7 Message Processor can insert or update patient and exam information as necessary.

3.2.1.5 General ORU Message Processing

The HL7 Message Processor treats ORU messages almost identically to ORR messages. It must ensure the exam exists in the AccessNET database, so it performs the same processing used with the ORR message. ORU message processing also includes the same basic

processing used with ORM and ADT messages. The end result is that prior to actually extracting the diagnostic report from the message, the HL7 Message Processor has updated the database with patient and exam information from the ORU message.

The content of a report can be received as either plain text, .rtf formatted, Microsoft Word formatted, TIFF formatted, or JPEG formatted. Plain text reports can be processed from an Observation Value utilizing either single or multiple segments. RTF formatted reports encoded using the Encapsulated Data (ED) Value Type can be processed from the Observation Value field. Microsoft Word formatted, TIFF formatted, and JPEG formatted reports can be processed when encoded using the Referenced Pointer (RP) Value Type.

3.2.2 HL7 Message Mappings

Although HL7 is a standard, it allows for significant variations in implementation. To support these variations, AccessNET requires the creation of a message map for each healthcare system configured to send HL7 messages to AccessNET. This message map is a simple ASCII text file that defines the structure of the messages sent from other healthcare systems to AccessNET. The AccessNET HL7 interface uses this map to store the information sent in the HL7 message in the proper fields in the AccessNET database.

The available AccessNET database fields that can be populated from inbound HL7 messages include:

AccessNET Identifier	MedVIEW Label	Database Column
StudyID	Exam ID	Study.StudyId
	StudyID identifies the primary identification number, or accession number, for an exam.	
StudyAccessionNum	N/A	Study.StudyAltId
	StudyAccessionNum identifies an alternate identification number for the exam. Note: The HL7 Message Processor removes any hyphens from this ID.	
StudyPlacerOrderNum	Exam ID	Study.StudyId
	StudyPlacerOrderNum identifies the primary identification number, or accession number, for an exam. If this identifier is used in an HL7 message map, it overrides the data mapped to the StudyID identifier. Normally, this identifier is used only in environments using temporary exam identifiers.	
StudyAltId	N/A	Study.AltId
	StudyAltId is an alternate exam identifier.	
StudyCode	Procedure Code	Study.StCode
	StudyCode indicates the facility-defined code used to describe an exam procedure.	
StudyDesc	Exam Description	Study.StDescr
	StudyDesc indicates the description for an exam procedure.	
StudyComment	Additional Patient History	Study.Comment
	StudyComment provides additional comments about the reason or need for an exam procedure.	
StudyState	Exam State	Study.State
	State of an exam in the workflow. One of the following literals: 'ORDER', INPROGRESS', 'QC', 'READ', 'CONSULT', 'TRANSCRIBE', 'SIGN', 'COMPLETE'. Note substitution may be used for mapping other values (i.e. 'NW'='ORDER').	
StudyDate1	Exam Date	Study.StDate
	StudyDate1 indicates the date and time when the exam is	

AccessNET Identifier	MedVIEW Label	Database Column
	scheduled to be performed.	
StudyDate2	Exam Date	Study.StDate
	If the StudyDate1 identifier did not contain a value, StudyDate2 indicates the date and time when the exam is scheduled to be performed.	
StudyJacketNumber	Jacket Number	Study.JacketNr
	StudyJacketNumber provides the identification number of the exam jacket, which contains a physical copy of the exam records.	
StudyProviderNumber	Provider Number	Study.RqProviderNr Provider.ProviderNr
	StudyProviderNumber indicates a unique identification number for the physician who requested the exam. If requesting physician information is supplied and an entry for this physician is not present in the table, a new entry is automatically added to the Provider table in the database.	
StudyRqPhysLName	Requesting Physician	Study.RqPhysLName Provider.LastName
	StudyRqPhysLName indicates the last name of the physician requesting the exam.	
StudyRqPhysFName	Requesting Physician	Study.RqPhysFName Provider.FirstName
	StudyRqPhysFName indicates the first name of the physician requesting the exam.	
StudyRqPhysTitle	N/A	Provider.Title
	StudyRqPhysTitle indicates the title of the physician requesting the exam.	
StudyRqPhysAddr1	N/A	Provider.Addr1
	StudyRqPhysAddr1 indicates the street address of the physician requesting the exam.	
StudyRqPhysAddr2	N/A	Provider.Addr2
	StudyRqPhysAddr2 indicates the street address of the physician requesting the exam.	
StudyRqPhysAddrCity	N/A	Provider.City
	StudyRqPhysAddrCity indicates the city of the physician requesting the exam.	
StudyRqPhysAddrState	N/A	Provider.State
	StudyRqPhysAddrState indicates the state of the physician requesting the exam.	
StudyRqPhysAddrPostal	N/A	Provider.Postal
	StudyRqPhysTitle indicates the title of the physician requesting the exam.	
StudyRqPhysAddrCountry	N/A	Provider.Country
	StudyRqPhysAddrPostal indicates the postal code of the physician requesting the exam.	
StudyRqPhysHomePhone	N/A	Provider.HomePh
	StudyRqPhysHomePhone indicates the home phone number of the physician requesting the exam.	
StudyRqPhysWorkPhone	N/A	Provider.WorkPh
	StudyRqPhysWorkPhone indicates the work phone number of the physician requesting the exam.	
StudyRqPhysMobilePhone	N/A	Provider.Mobile
	StudyRqPhysMobilePhone indicates the mobile phone	

AccessNET Identifier	MedVIEW Label	Database Column
	number of the physician requesting the exam.	
StudyRqPhysFAX	N/A	Provider.Fax
	StudyRqPhysFAX indicates the fax number of the physician requesting the exam.	
StudyRqPhysEmail	N/A	Provider.Email
	StudyRqPhysEmail indicates the email address of the physician requesting the exam.	
StudyVisitUID	N/A	Study.VisitUID
	StudyVisitUID indicates a unique internal identification number for this visit.	
StudyPriorVisitUID	N/A	N/A
	When two visits have been merged into a single visit and the patient is also changed, the StudyPriorVisitUID indicates the old identification number for the visit. Works in conjunctions with PriorPatientID.	
StudyTiming	Timing	Study.Timing
	StudyTiming indicates the priority level of the exam. If the first character of StudyTiming is "S," the exam is STAT. If the first character of StudyTiming is "A", the exam is ASAP. For any other character, the priority level is Normal.	
StudyInstanceUID	N/A	Study.StudyOUID
	StudyInstanceUID is a unique DICOM identification number for this exam.	
StudyScheduledDate	Scheduled Date	Study.SchedDate
	StudyScheduledDate identifies the date and time when this exam is scheduled.	
StudyScheduledLocation	Scheduled Location	Study.SchedLocation
	StudyScheduledLocation indicates the location or resource where this exam is scheduled.	
StudyScheduledModality	Scheduled Modality	Study.SchedModality
	StudyScheduledModality indicates the imaging modality scheduled for this exam.	
StudyPriorID	N/A	N/A
	If StudyPriorID is defined in a message, the HL7 message processor uses this information to locate the exam requiring an updated Exam ID. It then updates the Exam ID with the new identification number provided by the StudyID identifier.	
StudyFacility	Facility	Study.Facility
	StudyFacility identifies the facility that owns or is responsible for maintaining the study or the facility the study was acquired.	
StudyFacilityIndicator	Facility Internal/Foreign Flag	Study.Indicator
	StudyFacilityIndicator identifies an exam as internal or foreign to the system. Values include 'INTERNAL' and 'FOREIGN'.	
StudyExternalData	N/A	Study.ExternalData
	StudyExternalData indicates data internal to an external system used to identify an order. This information can be provided back to the external system using outbound HL7 messages.	
RadiationDose	Radiation Dose	Study.RadiationDose
	RadiationDose is intended to identify the radiation exposure to the patient by the associated procedure. This information is for presentation use only.	
PatientName	Name	Patient.LastName

AccessNET Identifier	MedVIEW Label	Database Column
		Patient.FirstName
		Patient.MiddleName
	PatientName identifies the first, middle, and last name of the patient associated with this exam.	
PatientID	Patient ID	Patient.PatientID
	PatientID represents the primary identification number for this patient.	
PatientPriorID	N/A	N/A
	When two patient records have been merged into a single patient record, the PatientPriorID indicates the old identification number for the patient.	
PatientSSN	SSN or country defined code	Patient.GovActNr
	PatientSSN indicates the social security number or government account number for this patient.	
PatientActNr	Account Number	Patient.FacActNr
	PatientActNr identifies the facility-defined account number for this patient.	
PatientPriorActNr	N/A	N/A
	When two patient records have been merged into a single patient record, the PatientPriorActNo indicates the old facility-defined account number for the patient.	
PatientOtherID	Other Patient ID	Patient.OtherActNr
	PatientOtherID indicates an additional identification number for the patient.	
PatientMrNr	Medical Record Number	Patient.MedRecNr
	PatientMrNr indicates the facility-defined medical record number for the patient.	
PatientSex	Gender	Patient.Sex
	PatientSex identifies the gender of the patient. This gender can be male or female.	
PatientDOB	Date of Birth	Patient.DOB
	PatientDOB indicates the birth date of the patient.	
PatientDOD	Date of Death	Patient.DOD
	PatientDOD indicates the date a patient died.	
PatientAddress1	N/A	Patient.Address1
	PatientAddress1 indicates the address for the patient.	
PatientAddress2	N/A	Patient.Address2
	PatientAddress2 indicates the address for the patient.	
PatientCity	N/A	Patient.City
	PatientCity indicates the city where the patient resides.	
PatientAddrState	N/A	Patient.St
	PatientAddrState indicates the state where the patient resides.	
PatientPostal	N/A	Patient.Zip
	PatientPostal indicates the postal code where the patient resides.	
PatientHomePhone	N/A	Patient.HomePhone
	PatientHomePhone indicates the home telephone number for the patient.	
PatientMobilePhone	N/A	Patient.MobilePhone
	PatientMobilePhone indicates the mobile telephone number for the patient.	
PatientWorkPhone	N/A	Patient.WorkPhone

AccessNET Identifier	MedVIEW Label	Database Column
	PatientWorkPhone indicates the work telephone number for the patient.	
PatientEmail	N/A	Patient.Email
	PatientEmail indicates the email address of the patient.	
PatientStation	Station	Patient.Station
	PatientStation indicates the station where the patient is currently located.	
PatientRoom	Room	Patient.Room
	PatientRoom indicates the room where the patient is currently located.	
PatientBed	Bed	Patient.Bed
	PatientBed indicates the bed number where the patient is currently located.	
ReportObserveCode	Observation Code	Report.ObCode
	ReportObserveCode indicates whether a report is final or preliminary. When the first character of the observation code is "F," the report is marked as final. If the first character is "P," the report is marked as preliminary.	
ReportObserveDesc	Observation Description	Report.ObDescr
	ReportObserveDesc provides a short description of the observation performed.	
ReportDate	Report Date	Report.RptDate
	ReportDate indicates the date the report was created.	
ReportTitle	Report Title	Report.Title
	Title or name of the report or document used for user identification.	
ReportPrimaryProviderNum	Primary Provider #	Report.PrimProviderN r Study.RqProviderNr Provider.ProviderNr
	ReportPrimaryProviderNum indicates a unique identification number for the physician who read the exam. If reading physician information is supplied, a new entry is automatically added to the Provider table in the database.	
ReportPrimaryAuthorLName	Primary Author and Reading Physician	Report.PrimAuthor Study.RdPhysLName Provider.LastName
	ReportPrimaryAuthorLName indicates the last name of the primary report author. This primary author is treated as the reading physician of the exam if the reading physician has not yet been added to the database.	
ReportPrimaryAuthorFName	Primary Author and Reading Physician	Report.PrimAuthor Study.RdPhysFName Provider.FirstName
	ReportPrimaryAuthorFName indicates the first name of the primary report author.	
ReportSecondaryAuthorName	Secondary Author	Report.SecAuthor
	ReportSecondaryAuthorName indicates a contributing author of the report.	
ReportSecondaryProviderNum	Secondary Provider #	Report.SecProviderNr Provider.ProviderNr
	ReportSecondaryProviderNum indicates a unique identification number for a secondary physician who read the	

AccessNET Identifier	MedVIEW Label	Database Column
	exam. If reading physician information is supplied, a new entry is automatically added to the Provider table in the database.	
ReportSecondaryAuthorLName	Secondary Author	Report.SecAuthor
	ReportSecondaryAuthorLName indicates the last name of the secondary report author.	
ReportSecondaryAuthorFName	Secondary Author	Report.SecAuthor
	ReportSecondaryAuthorFName indicates the first name of the secondary report author.	
ReportTranscribeDate	Transcribe Date	Report.TranscribeDate
	ReportTranscribeDate indicates the date and time when the report was transcribed.	
ReportTranscriber	Transcriber	Report.Transcriber
	ReportTranscriber identifies the name of the person who transcribed the report.	
ReportTranscriberProviderNum	N/A	Provider.ProviderNr
	ReportTranscriberProviderNum indicates a unique identification number for the person who transcribed the report. If transcriber information is supplied, a new entry is automatically added to the Provider table in the database.	
ReportTranscriberLName	Transcriber	Report.Transcriber
	ReportTranscriberLName indicates the last name of the report transcriber.	
ReportTranscriberFName	Transcriber	Report.Transcriber
	ReportTranscriberFName indicates the first name of the report transcriber.	
ReportVerifyDate	Verify Date	Report.VerifyDate
	ReportVerifyDate indicates the date and time the report was verified.	
ReportVerifyPhysicianFName	Verify Physician	Report.VerfyPhys
	ReportVerifyPhysicianFName indicates the first name of the physician who verified the report.	
ReportVerifyPhysicianLName	Verify Physician	Report.VerfyPhys
	ReportVerifyPhysicianLName indicates the last name of the physician who verified the report.	
ReportVerifyProviderNum	Verify Provider #	Report.VerifyProvider Nr
	ReportVerifyProviderNum indicates a unique identification number for the person who verified the report.	
ReportSourceUID	N/A	Report.SourceReportUID
	ReportSourceUID indicates the internal AccessNET identifier of a report that should be superseded by the new report. This is typically supplied by AccessNET when it sends an audio dictation to a transcription system.	
ReportValueType	N/A	N/A
	ReportValueType indicates the format of the report data included with the message. This identifier defaults to indicate Pure Text and must be mapped in order to process .rtf reports. Acceptable values include: TX – Plain Text ED – Encapsulated Data (used to transfer .rtf files) RP – Referenced Pointer (used to transfer formatted files) When using Encapsulated Data (ED) to transfer .rtf formatted	

AccessNET Identifier	MedVIEW Label	Database Column
	reports, ReportData must contain 'RTF' in component 3 (SubType), 'A' in component 4 (EncodeID), and the .rtf formated report in component 5. When using Referenced Pointer (RP) to transfer formatted reports, ReportData must contain the filename in component 1; 'AP' in component 3 (Type of data); 'ZDOC' (.doc), 'TIFF' (.tif), or 'JPG' (.jpg) in component 4. The formatted report is stored to a file, identified by component 1, in a shared folder.	
ReportData	Report	Stored Object
	ReportData indicates the actual content of the report. This content is stored as an individual object in the archive. ReportData can be used to process plain text or .rtf formated reports.	
ReportContinuationFlag	N/A	N/A
	ReportContinuationFlag indicates whether a report's content is divided between multiple messages. The string "01" indicates the message contains the start of a report; "10" indicates the report is continued in a following message; and "11" indicates the message contains the final part of the report. If the ReportContinuationFlag appears in a message, the HL7 message processor examines incoming ORR messages, collects the contents of the report, and stores it in the database.	
ReportAbnormalFlag	Diagnosis	Study.Status
	ReportAbnormalFlag determines whether a report contains a normal or abnormal diagnosis. When the first character of the data is "N," this indicates a normal result. If the first character is an "A," this indicates an abnormal result.	
ReportPrimaryProviderTitle	N/A	Provider.Title
	ReportPrimaryProviderTitle indicates the title of the primary author. This information is used only when inserting an entry for the reading physician into the Provider table.	

3.3   Outbound HL7 Messages

AccessNET has the capability of sending outbound HL7 messages. These outbound messages are triggered by events defined within the AccessNET System, and their composition is based on a configuration file. Outbound HL7 transactions are handled by the Job Processor with in the AccessSERVER or JobSERVER service depending on configuration. The Job Processor will send the message to the configured target. After sending the message, it will wait for an acknowledgement by the target that the message was received. If the job fails, an error will be posted to the audit log and the Job Processor will reattempt to send the message and place the job on hold if necessary. If the outbound message is successfully sent, an entry will be added to the audit log. A separate outbound HL7 message log file can also be configured to log target connection, message sent, message received, and target disconnect events. Each log entry will include date/time information.

3.3.1 Supported HL7 Message Types

Triggering from the supported events, any HL7 v2.5 or prior message can be created from information associated with a patient, study, or report and sent from AccessNET to an external HL7 compliant system. Although these messages include ADT and ORM, typically only ORU messages are configured within AccessNET to transfer exam state and result information.

3.3.1.1 General ORU Message to Synchronize Exam State

An ORU message can be sent as a result of any of the Exam State events listed in section 3.3.2 to notify an external HL7 compliant system of the progress of an exam within the reading workflow. The exam state can be sent in a form compliant with HL7 2.5 or can be translated to virtually any custom state codes.

3.3.1.2 General ORU Message to Transfer Reports

An ORU message can be sent as a result of a Report Insert, Update, Complete, Reject, or Verify event listed in section 3.3.2 to provide an external HL7 compliant system with a report created or verified within AccessNET. The report can be sent as either plain text, RTF formatted, Microsoft Word formatted, or TIFF formatted. Plain text reports can be sent with an Observation Value utilizing a single segment or multiple fixed length segments. RTF formatted reports can be sent utilizing the Encapsulated Data (ED) Value Type and a single segment Observation Value or Referenced Pointer (RP) Value Type. Microsoft Word formatted and TIFF formatted reports can be sent utilizing the Referenced Pointer (RP) Value Type. Reports sent using the Referenced Pointer (RP) mechanism are copied to a well-known location accessible by both systems using the internal AccessNET report identifier (ReportUID) as its filename. An HL7 message is then sent to the external system using the Referenced Pointer (RP) Value Type and Observation Value configured with the filename (ReportUID).

3.3.1.3 Special ORU Message to Transfer Dictation Audio File

A dictated audio report created within AccessNET can be transferred to an external HL7 compliant system that supports acceptance of audio dictations using the Referenced Pointer (RP) Value Type. The audio dictation file is copied to a well-known location accessible by both systems using the internal AccessNET report identifier (ReportUID) as its filename. An HL7 message is then sent to the external system using the Referenced Pointer (RP) Value Type and Observation Value configured with the filename (ReportUID).

3.3.2 AccessNET Events

An AccessNET event is a defined action in the AccessNET system. For example, the PatientInsert event occurs when the HL7 Message Processor adds a new patient record to the AccessNET system based on an HL7 message received from the hospital information system. The System Events table below provides a description of the defined events in the AccessNET system.

AccessNET System Event	Description
ApptDelete	The ApptDelete event occurs when an appointment is deleted using the AccessNET Scheduler.
ApptInsert	The ApptInsert event occurs when an AccessNET user adds a new appointment using the Scheduler.
ApptUpdate	The ApptUpdate event occurs when an AccessNET user makes changes to an appointment using the Scheduler.
ImageDelete	The ImageDelete event occurs when an image is deleted from the AccessNET system. For example, if a user named WJohnson uses Management Station to delete an exam image, the ImageDelete event occurs when the AccessSERVER deletes the image.
ImageInsert	The ImageInsert event occurs when the AccessSERVER receives and stores a new image.

AccessNET System Event	Description
ImageUpdate	The ImageUpdate event occurs when a user erases pixels from a teaching file image in MedVIEW using the Erase Image tool, then saves the changes on the AccessSERVER.
OverlayDelete	The OverlayDelete event occurs when you delete an image overlay using Management Station's Exam Query screen. In MedVIEW, you can delete overlay components, such as annotations, but you can delete the overlay layer only in Management Station.
OverlayInsert	The OverlayInsert event occurs when the AccessSERVER stores a new annotation for an image.
OverlayUpdate	The OverlayUpdate event occurs when the AccessSERVER updates an annotation. For example, the OverlayUpdate event occurs when you rotate a Left Arrow Stamp annotation and save the changes on the AccessSERVER.
PatientDelete	The PatientDelete event occurs when the AccessSERVER deletes a patient record.
PatientInsert	The PatientInsert event occurs when the AccessSERVER stores a new patient record.
PatientUpdate	The PatientUpdate event occurs when any changes are made to patient information stored on the AccessSERVER. For example, if you change a patient's first name from John to Frank, a PatientUpdate event occurs.
PresDelete	The PresDelete event occurs when you delete an image's presentation information.
PresInsert	The PresInsert event occurs when you insert an image's presentation information for the first time.
PresUpdate	The PresUpdate event occurs when you update an image's presentation information.
ReportComplete	The ReportComplete event occurs when a MedVIEW user marks a report as Complete or when AccessNET receives a report and marks it as Complete.
ReportDelete	The ReportDelete event occurs when a report is deleted from the AccessSERVER.
ReportInsert	The ReportInsert event occurs when AccessSERVER receives a new report.
ReportMerge	The ReportMerge event occurs for every completed diagnostic report encountered during a StudyMerge operation.
ReportReject	The ReportReject event occurs when a MedVIEW user marks a report as Rejected or when AccessNET receives a report via HL7 that superceeds a prior report waiting to be signed.
ReportUpdate	The ReportUpdate event occurs when AccessSERVER receives an update to a report.
ReportVerify	The ReportVerify event occurs when a MedVIEW user marks a report as Verified, or when AccessNET receives a report and marks it as Verified.
StateCOMPLETEenter	The StateCOMPLETEenter event occurs when an exam status is changed to Complete. An exam is assigned the Complete state when the primary reader has made a final diagnosis for the exam.
StateCOMPLETEleave	The StateCOMPLETEleave event occurs when an exam state is changed from Complete to another state.
StateCONSULTenter	The StateCONSULTenter event occurs when an exam status is changed to Consult. The Consult state is assigned to an exam by a primary reader when the primary reader is waiting for the

AccessNET System Event	Description
	opinion from a consultation.
StateCONSULTleave	The StateCONSULTleave event occurs when an exam state is changed from Consult to another state.
StateINPROGRESSenter	The StateINPROGRESSenter event occurs when an exam status is changed to In Progress because a DICOM modality sends Modality Performed Procedure Step (MPPS) information to AccessNET.
StateINPROGRESSleave	The StateINPROGRESSleave event occurs when an exam state is changed from In Progress to another state.
StateORDERenter	The StateORDERenter event occurs when the HL7 Message Processor adds a new exam order to AccessNET. All new exams received via HL7 are placed into the Order state, which indicates the exam procedure has been scheduled, but has not yet been performed.
StateORDERleave	The StateORDERleave event occurs when an exam state is changed from Order to another state.
StateQCenter	The StateQCenter event occurs when an exam status is changed to QC. The QC (Quality Control) state is assigned to an exam after the exam has been performed, but before any post-processing of the images has occurred.
StateQCleave	The StateQCleave event occurs when an exam state is changed from QC to another state.
StateREADenter	The StateREADenter event occurs when an exam status is changed to Read. The Read state indicates the exam is ready to be reviewed by the primary reader.
StateREADleave	The StateREADleave event occurs when an exam state is changed from Read to another state.
StateSIGNenter	The StateSIGNenter event occurs when an exam state is changed to Sign. The Sign state indicates that one or more reports are ready to be signed by the primary reader.
StateSIGNleave	The StateSIGNleave event occurs when an exam state is changed from Sign to another state.
StateTRANSCRIBEenter	The StateTRANSCRIBEenter event occurs when an exam state is changed to Transcribe. The Transcribe state indicates that one or more reports have been dictated and are ready for transcription.
StateTRANSCRIBEleave	The StateTRANSCRIBEleave event occurs when an exam state is changed from Transcribe to another state.
StudyAlert	The StudyAlert event occurs when MedVIEW detects an exam within the RADAR system that is marked with a critical flag. This is only available when RADAR is interfaced with MedVIEW.
StudyArchive	The StudyArchive event occurs when the CheckArchive job finds an exam not yet archived.
StudyCancel	The StudyCancel event occurs when a study order is cancelled.
StudyCommit	The StudyCommit event occurs when a study is successfully committed to another system using the DICOM protocol.
StudyDelete	The StudyDelete event occurs when an exam and its components are deleted from the AccessSERVER.
StudyExport	The StudyExport event occurs when a MedVIEW user exports an exam to DICOM or HTML.
StudyInsert	The StudyInsert event occurs when AccessSERVER receives a new exam. For example, this event occurs when an exam order is created via the AccessNET Scheduler.
StudyMatch	The StudyMatch event occurs when a new exam is acquired from

AccessNET System Event	Description
	a modality via DICOM and an order for the exam does not exist in the database.
StudyMerge	The StudyMerge event occurs when two exams are merged in MedVIEW.
StudyNoOrder	The StudyNoOrder event occurs when an exam with images is received via AccessNET or DICOM protocols that do not have an existing order associated.
StudyOffline	The StudyOffline event occurs when the Prefetch job loads off-line images or reports.
StudyOrder	The StudyOrder event occurs when the HL7 Message Processor adds a new exam order to AccessNET. This event is replaced by the StateORDERenter event.
StudyPrint	The StudyPrint event occurs when you print a server-based exam from MedVIEW.
StudyRead	The StudyRead event occurs when an exam is marked as Read. Exams can be marked as read automatically when a report is added via HL7 or manually when a radiologist marks an exam as Read in MedVIEW. This event is replaced by the StateREADenter event.
StudyReceived	The StudyReceived event occurs when the AccessSERVER completes the storage of an exam.
StudyRecycle	The StudyRecycle event occurs when an exam is moved to the Recycle Bin from either MedVIEW or Management Station.
StudyRestore	The StudyRestore event occurs when an exam is restored to the AccessNET system from the Recycle Bin.
StudyRetrieve	The StudyRetrieve event occurs when a MedVIEW or ImageWEB user retrieves a server-based exam.
StudyUpdate	The StudyUpdate event occurs when any component of an exam is updated on the server.

3.3.3 HL7 Message Mappings

The configuration file is used to specify the HL7 segment sequences and the corresponding AccessNET data to be populated within those segments. The available AccessNET data that can be sent within the outbound HL7 messages include:

AccessNET Identifier	Notes	Database Column
StudyId		Study.StudyId
StudyDesc		Study.StDescr
StudyDate	Date will be formatted as follows: YYYYMMDDHHMMSS. Null will be set if date not available. Time will be omitted if not available.	Derived from Study.StDate.
StudyJacketNumber		Study.JacketNr
StudyRqProviderNumber		Study.RqProviderNr
StudyRqPhysLName		Study.RqPhysLName
StudyRqPhysFName		Study.RqPhysFName
StudyRqPhysMName		Study.RqPhysMName
StudyRqPhysName	Name will be formatted as follows: <lname>~<fname>~<mname	Derived from Study.RqPhysLName, Study.RqPhysFName,

AccessNET Identifier	Notes	Database Column
	>~<suffix>~<prefix>~<degree> where ~ is the mapped component delimiter.	Study.RqPhysMName.
StudyRqPhysAddr1		Provider.Addr1
StudyRqPhysAddr2		Provider.Addr2
StudyRqPhysAddrCity		Provider.City
StudyRqPhysAddrState		Provider.State
StudyRqPhysAddrPostal		Provider.Postal
StudyRqPhysAddrCountry		Provider.Country
StudyRqPhysHomePhone		Provider.HomePh
StudyRqPhysWorkPhone		Provider.WorkPh
StudyRqPhysMobilePhone		Provider.Mobile
StudyRqPhysFAX		Provider.Fax
StudyRqPhysEmail		Provider.Email
StudyRdProviderNumber		Study.RdProviderNr
StudyRdPhysLName		Study.RdPhysLName
StudyRdPhysFName		Study.RdPhysFName
StudyRdPhysMName		Study.RdPhysMName
StudyRdPhysName	Name will be formatted as follows: <lname>~<fname>~<mname>~<suffix>~<prefix>~<degree> where ~ is the mapped component delimiter.	Derived from Study.RdPhysLName, Study.RdPhysFName, Study.RdPhysMName.
StudyRdPhysAddr1		Provider.Addr1
StudyRdPhysAddr2		Provider.Addr2
StudyRdPhysAddrCity		Provider.City
StudyRdPhysAddrState		Provider.State
StudyRdPhysAddrPostal		Provider.Postal
StudyRdPhysAddrCountry		Provider.Country
StudyRdPhysHomePhone		Provider.HomePh
StudyRdPhysWorkPhone		Provider.WorkPh
StudyRdPhysMobilePhone		Provider.Mobile
StudyRdPhysFAX		Provider.Fax
StudyRdPhysEmail		Provider.Email
StudyCode		Study.StCode
StudyComment		Study.Comment
StudyState	One of the following literals depending on state: 'ORDER', 'INPROGRESS', 'QC', 'READ', 'CONSULT', 'TRANSCRIBE', 'SIGN', 'COMPLETE'. Note the following substitution formatter will be applied if no other StudyState formatter is specified in the map: ('ORDER'='NW','INPROGRESS'='SC','QC'='SC','READ'='SC','CONSULT'='SC', 'TRANSCRIBE'='SC', 'SIGN'='SC','COMPLETE'='C	Derived from Study.State.

AccessNET Identifier	Notes	Database Column
	M')	
StudyAltId		Study.AltId
StudyVisitUid		Study.VisitUID
StudyTiming		Study.Timing
StudyInstanceUid		Study.StudyOUID
StudyScheduledDate	Date will be formatted as follows: YYYYMMDDHHMMSS. Null will be set if date not available. Time will be omitted if not available.	Derived from Study.SchedDate.
StudyScheduledLocation		Study.SchedLocation
StudyScheduledModality		Study.SchedModality
StudyFacility		Study.Facility
StudyFacilityIndicator	Values include 'INTERNAL' or 'FOREIGN'	Study.Indicator
StudyExternalData		Study.ExternalData
RadiationDose	RadiationDose indicates the patient exposure to radiation due to procedure.	Study.RadiationDose
OperatorName	OperatorName indicates the technologist performing the procedure. If multiple operators, provides list separated by '/'	Series.OpName
PatientSex	Values include 'M' (male), 'F' (female), 'O' (other), or 'U' (unknown).	Patient.Sex
PatientDOB	Date will be formatted as follows: YYYYMMDDHHMMSS. Null will be set if date not available. Time will be omitted if not available.	Derived from Patient.DOB.
PatientDOD	PatientDOD indicates the date a patient died.	Patient.DOD
PatientAddress1	PatientAddress1 indicates the address for the patient.	Patient.Address1
PatientAddress2	PatientAddress2 indicates the address for the patient.	Patient.Address2
PatientCity	PatientCity indicates the city where the patient resides.	Patient.City
PatientAddrState	PatientAddrState indicates the state where the patient resides.	Patient.St
PatientPostal	PatientPostal indicates the postal code where the patient resides.	Patient.Zip
PatientHomePhone	PatientHomePhone indicates the home telephone number for the patient.	Patient.HomePhone
PatientMobilePhone	PatientMobilePhone indicates the mobile telephone number for the patient.	Patient.MobilePhone
PatientWorkPhone	PatientWorkPhone indicates	Patient.WorkPhone

AccessNET Identifier	Notes	Database Column
	the work telephone number for the patient.	
PatientEmail	PatientEmail indicates the email address of the patient.	Patient.Email
PatientLName		Patient.LastName
PatientFName		Patient.FirstName
PatientMName		Patient.MiddleName
PatientName	Name will be formatted as follows: <lname>~<fname>~<mname>~<suffix>~<prefix>~<degree> where ~ is the mapped component delimiter.	Derived from Patient.LastName, Patient.FirstName, Patient.MiddleName.
PatientId		Patient.PatientID
PatientActNr		Patient.FacActNr
PatientOtherId		Patient.OtherActNr
PatientSSN		Patient.GovActNr
PatientStation		Patient.Station
PatientRoom		Patient.Room
PatientBed		Patient.Bed
PatientMRNr		Patient.MedRecNr
ReportObserveCode		Report.ObCode
ReportObserveDesc		Report.ObDescr
ReportDate	Date will be formatted as follows: YYYYMMDDHHMMSS. Null will be set if date not available. Time will be omitted if not available.	Report.RptDate
ReportValueType	ReportValueType indicates the format of the report data included with the message. Acceptable values include: TX – Plain Text FT – Formatted Text ED – Encapsulated Data (used to transfer .rtf files) When using Encapsulated Data (ED) to transfer .rtf formatted reports, ReportData must contain 'RTF' in subfield 2 (SubType), 'A' in subfield 3 (EncodeID), and the .rtf formated report in subfield 4. RP – Reference to formatted report.	Static values including the subfields for Encapsulated Data are coded into the map file.
ReportData	Report content can be transfered in either plain text or .rtf format. If transfering plain text, any .rtf formating within AccessNET reports are stripped and all newline and carriage return characters are replaced with the mapped	Derived from actual report content.

AccessNET Identifier	Notes	Database Column
	repetition character (see ellipse formatters for further options). If transfering .rtf formatted reports, plain text and .rtf formatted reports are transferred without conversion.	
ReportPrimaryAuthorLName	Substring before first comma-space string.	Derived from Report.PrimAuthor.
ReportPrimaryAuthorFName	Substring after first comma-space string.	Derived from Report.PrimAuthor.
ReportPrimaryAuthorName	Name will be formatted as follows: <lname>~<fname>~<mname>~<suffix>~<prefix>~<degree> where ~ is the mapped component delimiter.	Derived from Report.PrimAuthor.
ReportPrimaryAuthorNameCM	Name will be formatted as follows: <lname>~<fname>~<mname>~<suffix>~<prefix>~<degree> where ~ is the mapped sub-component delimiter.	Derived from Report.PrimAuthor.
ReportPrimAuthAddr1		Provider.Addr1
ReportPrimAuthAddr2		Provider.Addr2
ReportPrimAuthAddrCity		Provider.City
ReportPrimAuthAddrState		Provider.State
ReportPrimAuthAddrPostal		Provider.Postal
ReportPrimAuthAddrCountry		Provider.Country
ReportPrimAuthHomePhone		Provider.HomePh
ReportPrimAuthWorkPhone		Provider.WorkPh
ReportPrimAuthMobilePhone		Provider.Mobile
ReportPrimAuthFAX		Provider.Fax
ReportPrimAuthEmail		Provider.Email
ReportPrimaryProviderNum		Derived from Report.PrimProviderNr
ReportSecondaryAuthorLName	Substring before first comma-space string.	Derived from Report.SecAuthor.
ReportSecondaryAuthorFName	Substring after first comma-space string.	Derived from Report.SecAuthor.
ReportSecondaryAuthorName	Name will be formatted as follows: <lname>~<fname>~<mname>~<suffix>~<prefix>~<degree> where ~ is the mapped component delimiter.	Derived from Report.SecAuthor.
ReportSecondaryProviderNum		Derived from Report.SecProviderNr
ReportSecAuthAddr1		Provider.Addr1
ReportSecAuthAddr2		Provider.Addr2
ReportSecAuthAddrCity		Provider.City
ReportSecAuthAddrState		Provider.State
ReportSecAuthAddrPostal		Provider.Postal
ReportSecAuthAddrCountry		Provider.Country

AccessNET Identifier	Notes	Database Column
ReportSecAuthHomePhone		Provider.HomePh
ReportSecAuthWorkPhone		Provider.WorkPh
ReportSecAuthMobilePhone		Provider.Mobile
ReportSecAuthFAX		Provider.Fax
ReportSecAuthEmail		Provider.Email
ReportVerifyPhysicianLName	Substring before first comma-space string.	Derived from Report.VerifyPhys
ReportVerifyPhysicianFName	Substring after first comma-space string.	Derived from Report.VerifyPhys
ReportVerifyPhysicianName	Name will be formatted as follows: <lname>~<fname>~<mname>~<suffix>~<prefix>~<degree> where ~ is the mapped component delimiter.	Derived from Report.VerifyPhys
ReportVerifyPhysicianNameCM	Name will be formatted as follows: <lname>~<fname>~<mname>~<suffix>~<prefix>~<degree> where ~ is the mapped sub-component delimiter.	Derived from Report.VerifyPhys
ReportVerifyProviderNum		Derived from Report.VerifyProviderNr
ReportVerifyDate		Derived from Report.VerifyDate
ReportTranscriberAuthorLName	Substring before first comma-space string.	Derived from Report.Transcriber.
ReportTranscriberAuthorFName	Substring after first comma-space string.	Derived from Report.Transcriber.
ReportTranscriberAuthorName	Name will be formatted as follows: <lname>~<fname>~<mname>~<suffix>~<prefix>~<degree> where ~ is the mapped component delimiter.	Derived from Report.Transcriber.
ReportState	If report is preliminary and verified, the value is 'P'. If report is preliminary and not verified, the value is 'R'. If report is final and verified, the value is 'F'. If report is final and not verified, the value is 'R'. In all other cases, the value is null.	Derived from Report.State and Report.ObCode.
ReportUID	Identifier used to uniquely identify a report within the AccessNET system. This can be supplied to a dictation system to assist in relating the transcribed text report with the original dictated audio report.	Derived from Report.ReportUID
ReportTitle	Description of the report	Derived from Report.Title.

AccessNET Identifier	Notes	Database Column
MessageDateTime	Date will be formatted as follows: YYYYMMDDHHMMSS. Null will be set if date not available. Time will be omitted if not available.	Derived from Study.UpdateDate
MessageId	Unique for each message send job attempt in the format DDHHMMSSUUU where UUU is milliseconds.	Derived from current date and time.
MultiSegId	Segment set ID used in repeating segments (see ellipse formatter). Starts at 1 and increments by 1 for each segment.	